

CENTRAL FIFE AS A GROWTH AREA 1959-67:

A GEOGRAPHICAL APPRAISAL.

by

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TABLE OF CONTENTS.

<u>CHAPTER.</u>		<u>VOLUME I.</u>
		<u>PAGE.</u>
I.	Introduction.	1.01 - 1.16
II.	The Growth Area Concept: Its Relevance And Implications To Central Fife.	2.01 - 2.55
III.	Geographical Aspects Of The Industrial Base Of Fife: 1959-67.	3.01 - 3.76
IV.	The Significance Of Coalmining And Its Decline: 1947-67.	4.01 - 4.58
V.	Other Major Industries: An Evaluation Of Trends (1959-67) And Future Potential.	5.01 - 5.115
VI.	Other Distributions Relevant To Develop- ment And Growth In Central Fife.	6.01 - 6.61
VII.	The Location Of Industry In Fife: 1945-67.	7.01 - 7.71
VIII.	Conclusions.	8.01 - 8.17
	Selected Bibliography.	xxiv - xxxi

LIST OF TABLES.

<u>TABLE</u>		<u>VOLUME II.</u>
		<u>PAGE</u>
2.01	Percentages Of Insured Population Unemployed: Great Britain: 1937 And 1938.	3
2.02	Estimated Net Migration: Gt. Britain: 1921-31. Selected Areas.	3
2.03	Annual Average Unemployment Percentages: Scotland And Great Britain: Selected Years 1923-63.	4
2.04	Activity Rates: Scotland And Great Britain: Selected Years: 1951-63.	4
2.05	Estimated Net Migration: Scotland: 1901-60.	5
2.06	Index Of Industrial Production: Scotland And United Kingdom: 1958-63.	5
2.07	Activity Rates: Fife, Scotland, United Kingdom: 1961.	11
2.08	Estimated Net Emigration In Fife: 1951-61.	11
2.09	Total Insured Population In Fife: 1953-63.	16
2.10	Changes In Total Insured Population In Fife By Sector: 1959-63.	16
2.11	Insured Population In Selected Industrial Orders In Fife: 1959-63.	17
2.12	Changes In Insured Population In Selected Industrial Orders: Fife: 1959-63.	18
2.13	Social And Economic Indices In Fife.	24
2.14	Insured Population In The Central Fife Growth Area: By Sector: 1959-63.	26
2.15	Insured Population In Kirkcaldy-Glenrothes: By Sector: 1959-63.	28
2.16	Insured Population In Cowdenbeath-Burntisland: By Sector: 1959-63.	28

<u>TABLE.</u>		<u>PAGE.</u>
3.01	The Industrial Structure Of Fife: 1959, 1963 And 1967.	29
3.02	The Male And Female Industrial Structures Of Fife: 1959, 1963 And 1967.	30
3.03	Fife County: Changes In Employment By Industrial Order: 1959-67.	31
3.04	Fife County: Changes In Male And Female Employment By Industrial Order: 1959-67.	32
3.05	Fife County: Industrial Structure By Industry In 1959 And Changes 1959-67.	33
3.06	Fife County: Contracting Industry Groups And Industries: 1959-67.	35
3.07	Fife County: Expanding Industry Groups And Industries: 1959-67.	36
3.08	Fife County: Employment And Production In Coalmining: 1959-67.	37
3.09	Employment And Production In Shipbuilding And Marine Engineering: Fife, Scotland And The United Kingdom: 1959-67.	38
3.10	Employment And Production In Linoleum And Leather Cloth Manufacturing: Fife, Scotland And The United Kingdom: 1959-67.	39
3.11	Employment And Production In Paper And Board Manufacturing: Fife, Scotland And The United Kingdom: 1959-67.	40
3.12	Employment And Production In Other Machinery: Fife, Scotland And The United Kingdom: 1959-67.	41
3.13	Employment And Production In Industrial Plant And Steelwork: Fife, Scotland And The United Kingdom: 1959-67.	42
3.14	Employment And Production In The Manufacture Of Scientific Instruments Etc.: Fife, Scotland And The United Kingdom: 1959-67.	43
3.15	The Manufacture Of Telegraph And Telephone Apparatus: Employment In Fife, Scotland And The United Kingdom: 1959-67: Production In The United Kingdom: 1966-68.	44

3.16	Employment And Production In Radio And Other Electronic Apparatus: Fife, Scotland And The United Kingdom: 1959-67.	45
3.17	Employment And Production In The Weaving Of Cotton, Linen And Man-Made Fibres: Fife, Scotland And The United Kingdom: 1959-67.	46
3.18	Employment And Production In Hosiery And Other Knitted Goods: Fife, Scotland And The United Kingdom: 1959-67.	47
3.19	Employment And Production In Carpet Manufacturing: Fife, Scotland And The United Kingdom: 1959-67.	48
3.20	Employment And Production In Weatherproof Outerwear And In Dresses, Lingerie And Infants' Wear: Fife, Scotland And The United Kingdom: 1959-67.	49
3.21	Fife County: Employment In Industry: 1959-67.	50
3.22	Fife County: Principal Industrial Orders In The Male And Female Industrial Structures: 1959 And 1967.	51
3.23	Fife County: Principal Industries In The Male And Female Industrial Structures: 1959 And 1967.	52-53
3.24	Fife County: Distribution Of Industrial Employment In 1959.	54
3.25	Fife County: Distribution Of Industrial Employment In 1963.	55
3.26	Fife County: Distribution Of Industrial Employment In 1967.	56
3.27	Fife County: Distribution Of Changes In Industrial Employment: 1959-67.	60-61
3.28	Kirkcaldy-Glenrothes: Industrial Structure: 1959, 1967 And Changes 1959-67.	69
3.29	Dunfermline-Inverkeithing: Industrial Structure: 1959, 1967 And Changes 1959-67.	70
3.30	Cowdenbeath-Burntisland: Industrial Structure: 1959, 1967 And Changes 1959-67.	71
3.31	Leven: Industrial Structure: 1959, 1967 And Changes 1959-67.	72

3.32	North And East Fife: Industrial Structure: 1959, 1967 And Changes 1959-67.	73
3.33	Fife County: Indices Of Diversification- Specialization: 1959, 1963, 1967.	74
3.34	Fife County: Trends In Industrial Employment: By Sub-Area: 1959-67.	75
3.35	Kirkcaldy-Glenrothes: Male And Female Industrial Structures: 1959, 1967 And Changes 1959-67.	77
3.36	Dunfermline-Inverkeithing: Male And Female Industrial Structures: 1959, 1967 And Changes 1959-67.	78
3.37	Cowdenbeath-Burntisland: Male And Female Industrial Structures: 1959, 1967 And Changes 1959-67.	79
3.38	Leven: Male And Female Industrial Structures: 1959, 1967 And Changes 1959-67.	80
3.39	North And East Fife: Male And Female Industrial Structures: 1959, 1967 And Changes 1959-67.	81
3.40	Daily Travel To Work Into Kirkcaldy-Glenrothes: Selected Years: 1959-66.	82
3.41	Origin Of Immigrants In Glenrothes New Town: 1967 And 1968.	83
4.01	Scotland: Coal Production: 1959 And Estimate 1961-65.	97
4.02	Scotland: Manpower In Coalmining: 1950 And Estimate 1961-65.	97
4.03	Scottish Division: Annual Production Per Man: 1949 And Estimate 1961-65.	98
4.04	Fife: Coal Production: 1949 And Estimate 1965.	98
4.05	Fife: Manpower In Coalmining: 1949 And Estimate 1965.	99
4.06	Fife: Annual Production Per Man: 1949 And Estimate 1965.	99
4.07	Fife Coalfield: Estimated Coal Reserves.	100
4.08	Fife Coalfield: Manpower In Selected Collieries: 1948.	101

4.09	East Fife Coalfield: Estimated Life Of Productive Units: 1948-60.	102
4.10	East Fife Coalfield: Coal Production: 1947-57.	104
4.11	East Fife Coalfield: Annual Average Output Per Man: 1948-57.	104
4.12	East Fife Coalfield: Productivity Per Manshift: Face And Overall Workers: 1947-57.	106
4.13	East Fife Coalfield: Manpower: 1947-57.	106
4.14	East Fife Coalfield: Manpower In Individual Units: Selected Years: 1948-56.	109
4.15	East Fife Coalfield: Average Manpower Per Unit: 1947-57.	110
4.16	East Fife Coalfield: Expenditure On Major Capital Schemes: 1947-57.	112
4.17	East Fife Coalfield: Economics Of Coalmining: 1951-57.	113
4.18	West Fife Coalfield: Estimated Life Of Productive Units: 1948-60.	115
4.19	West Fife Coalfield: Coal Production: 1947-57.	116
4.20	West Fife Coalfield: Manpower: 1947-57.	116
4.21	West Fife Coalfield: Manpower In Individual Units: Selected Years 1948-56.	118
4.22	West Fife Coalfield: Annual Average Output Per Man: 1948-57.	119
4.23	West Fife Coalfield: Output Per Manshift: Face And Overall Workers: 1947-57.	119
4.24	West Fife Coalfield: Average Manpower Per Unit: 1948-57: Average Output Per Unit: 1947-57.	122
4.25	West Fife Coalfield: Expenditure On Major Capital Schemes: 1947-57.	124
4.26	West Fife Coalfield: Economics Of Coalmining: 1951-57.	125
4.27	Fife Coalfield: Coal Production: 1957-67.	126

<u>TABLE.</u>		<u>PAGE.</u>
4.28	Fife Coalfield: Manpower: 1957-67.	126
4.29	Fife Coalfield: Production Per Manshift: 1957-67.	129
4.30	Economics Of Coalmining: East And West Fife Coalfields: 1957-60: Fife Coalfield: 1960-67.	132
4.31	Fife Coalfield: Rationalization Of Productive Capacity And Manpower: 1957-67.	134
4.32	Fife Coalmining: Classification Of Collieries: 1962.	135
4.33	Fife Coalfield: Proposed Rationalization: 1966-1970.	137
4.34	Fife Coalfield: Annual Average Output Per Man: 1957-67.	138
4.35	Fife Coalfield: Average Manpower Per Unit: 1957-67: Average Output Per Unit: 1957-67.	138
4.36	Fife Coalfield: Expenditure On Major Capital Schemes: 1947-67.	142
4.37	Fife County: Distribution Of Employment In Coal- mining: 1953 And 1958-67.	143
4.38	Fife Coalfield: Unemployment By Areas: Mid-Year Estimates: 1959-67.	144
4.39	Fife Coalfield: Travel To Work By Areas: 1954, 1959, 1964, 1965.	145
4.40	Fife County: Estimates Of Net Migration By Area: 1951-61.	146
4.41	Fife County: Distribution of Population: 1951-61- 66.	147
4.42	Cowdenbeath Employment Exchange Area: Capital Expenditure On Public Services: 1945-62.	148
5.01	Fife County: Registered Unemployed In Linoleum And Leather Cloth: 1959-67.	149
5.02	Scotland And United Kingdom: Production Of Floor- coverings: 1955-67.	150
5.03	Fife County: Employment In Linoleum And Leather Cloth: Mid-Year Estimates 1953: 1958-67.	151
5.04	Fife County: Employment In Paper, Printing And Publishing And In Paper And Board: 1959-67.	151

TABLE.PAGE.

5.05	Fife County: Distribution Of Employment In Paper And Board: 1959-67.	154
5.06	Fife, Scotland And The United Kingdom: Employment In Paper And Board: 1959-67.	154
5.07	Scotland And United Kingdom: Production Of Paper And Board: 1959-67.	156
5.08	United Kingdom: Market Trends In Paper And Board: 1959-67.	157
5.09	United Kingdom: Trends In Production In Sectors Of The Paper And Board Industry: 1959-67.	157
5.10	Fife County: Distribution Of Employment In Ship-building And Marine Engineering: 1959-67.	161
5.11	Fife County: Employment In Textile Manufacturing: 1959-67.	161
5.12	Fife County: Employment In Clothing And Footwear: 1959-67.	162
5.13	Fife County: Distribution Of Employment In Hosiery And Other Knitted Goods: 1959-67.	162
5.14	United Kingdom: Manufacturers' Sales Of Selected Hosiery And Other Knitted Goods: 1959-67.	165
5.15	United Kingdom: Production Of Carpets And Rugs: 1959-67.	165
5.16	United Kingdom: Index Numbers Of Wholesale Prices Of Synthetic Fibres: 1959-67.	166
5.17	Fife County: Distribution Of Employment In Spinning Of Cotton, Linen And Man-made Fibres: 1959-67.	166
5.18	United Kingdom: Production Of Tufted Carpets As An Indicator Of Demand For Synthetic Fibres: 1959-67.	168
5.19	Scotland And United Kingdom: Indicators Of Demand For Flax And Hemp Yarns: 1959-67.	168
5.20	Fife County: Distribution Of Employment In Weather-proof Outerwear And Dresses, Lingerie And Infants' Wear: 1959-67.	169
5.21	United Kingdom: Indicators Of Demand For Selected Items Of Lingerie And Infants' Wear: 1959-67.	171

5.22	Fife County: Employment In * Engineering And Scientific Instruments - Electronics: 1959-67.	171
5.23	Fife County: Employment In * Electrical Goods: 1959-67.	174
5.24	Scotland And United Kingdom: Employment In Scientific Instruments And Electronics: 1959-67.	175
5.25	Scotland And United Kingdom: Production In Scientific Instruments And Electronics: 1959-67.	176
5.26	Fife County, Scotland, United Kingdom: Activity Rates: 1961 And 1966.	177
5.27	Fife County: Employment In Engineering: 1959-67.	177
5.28	Fife County: Distribution Of Employment In Other Machinery And Industrial Plant And Steelwork: 1959-67.	178
5.29	Scotland And United Kingdom: Production In Other Machinery: 1959-67.	179
5.30	Fife County: Distribution Of Employment In Other Machinery: 1959-67.	180
5.31	Fife County: Distribution Of Employment In Industrial Plant And Steelwork: 1959-67.	180
5.32	Scotland And United Kingdom: Employment And Production In Industrial Plant And Steelwork: 1959-67.	183
6.01	Fife County: Net Total Daily Travel To Work Statistics: Selected Years: 1959-66.	185
6.02	Fife County: Male Daily Travel To Work Estimates: Selected Years: 1959-66.	186-187
6.03	Fife County: Female Daily Travel To Work Estimates: Selected Years: 1959-66.	188-189
6.04	Fife County: Distribution Of Population: 1951, 1961, 1966.	194
6.05	Fife County: Distribution Of Working Age Population 1951, 1961, 1966.	196
6.06	Fife County: Changes In Population: 1951-61 & 1961-66.	198

6.07	Fife County: Estimates Of Net Migration: 1951-66	200-201
6.08	Fife County: Standardized Birth And Death Rates: 1957-59 And 1962-67.	204
6.09	Fife County: Distribution Of Estimated Net Migration: 1961-66.	205
6.10	Fife County: Percentage Distribution Of Population By Area: 1951, 1961 And 1966.	206
6.11	Fife County: Distribution Of Changes In Working Age Population: 1951-61 And 1961-66.	207
6.12	Fife County: Working Age Population: 1961, 1966 And Estimate For 1971.	208
6.13	Fife County: Employment Trends As Indices Of The Demand For Labour: 1959-67.	209
6.14	Fife County: Age Structure Of Working Population: 1961, 1966 And Estimate For 1971.	210
6.15	Fife County, Scotland, United Kingdom: Activity Rates: 1961, 1966.	211
6.16	Fife County: Distribution Of Registered Unemployed: Mid-Year: 1959-67.	212
6.17	Fife County: Distribution Of Registered Male Unemployed: By Sector: Mid-Year 1959-67.	214
6.18	Fife County: Distribution Of Registered Female Unemployed: By Sector: Mid-Year 1959-67.	216
6.19	Fife County: Distribution Of Housing Completions: Local Authorities And Scottish Special Housing Association: 1945-66.	218
6.20	Fife County: Allocation Of Housing For Key Workers In Selected Burghs: 1959 - Mid 1967.	220
6.21	Fife County: Distribution Of House Completions In The Private Sector: 1945-1966.	221
6.22	Fife County: Houses Closed Or Demolished In Slum Clearance: 1955-66.	227
6.23	Central Fife: Areas Occupied And Owned By The National Coal Board: August 1965.	229
6.24	Lochgelly District Of County: Survey of Dereliction: 1958.	235

<u>TABLE.</u>		<u>PAGE.</u>
7.01	Location Of New Establishments In Fife: 1945-57.	240
7.02	Location Of New Establishments In Fife: 1958 - Mid 1967.	243
7.03	Distribution Of Estimated Employment In 1967 In Establishments Located In Fife From 1958 to Mid 1967 And From 1958 To 1963.	245
7.04	Sources Of Origin Of New Establishments In Fife Interviewed In 1967.	246
7.05	The Structure Of New Establishments In Fife Interviewed In 1967 By Industry Type.	246
7.06	Estimated Employment In New Establishments In Fife Interviewed In 1967. By Source Of Origin.	247
7.07	The Structure Of New Establishments In Fife Interviewed In 1967 By Industry Type And Sources Of Origin.	248
7.08	Distribution Of Approximate Area Occupied By New Manufacturing Establishments In Fife: 1967.	249
7.09	Motivating Forces In The Demand For New Space By Manufacturing Establishments Interviewed In Fife In 1967.	249
7.10	Types Of Products In The Demand For Space By Manufacturing Establishments Motivated By Business Expansion.	250
7.11	The Location Of Manufacturing Establishments In Fife: 1958-Mid 1967: Factors In The Initial Stages Of The Search For Space: By Industry Type.	250
7.12	The Location Of Manufacturing Establishments In Fife: 1958-Mid 1967: Factors In The Initial Stages Of The Search For Space: By Origins Of Firms.	251
7.13	Variation In Market Scale By The Origins Of The Manufacturing Establishments Interviewed In Fife.	251
7.14	Factors Affecting The Possibility Of Expanding In Situ. By Origins Of Firms.	252
7.15	The Nature Of Problems Affecting Possible Expansion In Situ: By Industry Type.	252
7.16	The Nature Of Problems Affecting Possible Expansion In Situ: By Origins Of Firms.	253

<u>TABLE.</u>		<u>PAGE.</u>
7.17	Consideration Of Location In Non-Assisted Areas By Industry Type And Origins Of Firms.	253
7.18	Reasons For The Rejection Of A Location In A Non-Assisted Area.	254
7.19	The Preference For An Assisted Area Location: Principal Reasons And Employment By Reason In 1967.	254
7.20	Factors In The Choice Of A Fife Location 1958- Mid 1967.	255
7.21	Labour As A Factor In The Location Of New Manufact- uring Establishments In Fife: 1958-Mid 1967: By Industry Type.	256
7.22	Available Labour As A Factor In The Location Of New Manufacturing Establishments In Fife: 1958-Mid 1967: By Source Of Origin To Industry Type.	257
7.23	Available Premises And Sites As A Factor In The Location Of New Manufacturing Establishments In Fife: 1958-Mid 1967.	257
7.24	Requirements In Premises And Sites In The New Manufacturing Establishments In Fife: 1958-Mid 1967: By Industry Type.	258
7.25	Construction Of Advance Factory Space In Fife 1959 - 1968.	263
7.26	Factories Purpose-Built For New Manufacturing Estab- lishments In Fife: 1958-Mid 1967: By Industry Type.	265
7.27	Ownership And Rental Of Premises By New Manufacturing Industries In Fife: 1967.	265
7.28	Correlation Of Purpose-Built To Owned Premises In New Manufacturing Establishments In Fife: 1967.	266
7.29	Frequencies Of Stated Markets In New Manufacturing Establishments In Fife: 1967: By Industry Type.	267
7.30	Stated Principal Markets Of New Manufacturing Establishments In Fife: 1967: By Industry Type.	268
7.31	Estimated Employment In New Manufacturing Estab- lishments In Fife In 1967: By Industry Type To Stated Principal Market Areas.	269

7.32	Frequencies Of Stated Sources Of Principal Raw Materials In New Manufacturing Establishments In Fife: 1967: By Industry Type.	270
7.33	The Significance Of Suitable Personal Communications To New Manufacturing Establishments In Fife In 1967: By Industry Type.	270
7.34	Industrial Development Certificates In Fife: Projects Approved 1960-67.	271
7.35	Industrial Development Certificates In Great Britain: 1960-67.	272
7.36	Industrial Development Certificates In Scotland. The Emphasis On The Development Districts And Comparison With Great Britain 1960-67.	272
7.37	Industrial Development Certificates In Fife. Comparison With Scotland 1960-67.	273

LIST OF MAPS.

VOLUME II

<u>MAP.</u>		<u>PAGE.</u>
1.01	The Central Fife Growth Area.	1
1.02	Fife County: Situation In The British Isles.	2
2.01	Proposed Road Network In Central Scotland.	6
2.02	Location Of New Towns In Central Scotland.	7
2.03	Distribution Of Unemployment: Fife County: Mid 1963.	8
2.04	Percentage Unemployed By Area: Fife County: Mid 1963.	9
2.05	Trends In Unemployment: Fife County: Mid-Year 1959-63.	10
2.06	Distribution Of Population: Fife County: 1961.	12
2.07	Changes In Population: Fife County: 1951-61.	13
2.08	Estimated Net Migration: Fife County: 1951-61.	14
2.09	Estimated Net Migration By Age And Sex: Fife County: 1951-61.	15
2.10	Trends In Insured Population: Fife County: 1959-63.	19
2.11	Trends In Insured Population: Primary Sector: Fife County: 1959-63.	20
2.12	Trends In Insured Population: Secondary Sector: Fife County: 1959-63.	21
2.13	Trends In Insured Population: Tertiary Sector: Fife County: 1959-63.	22
2.14	Distribution Of Industry: Fife County: 1964.	23
2.15	Fife County: Areal Limits For Population And Employment Statistics: 1963.	25

<u>MAP.</u>		<u>PAGE.</u>
2.16	Location Of New Establishments: Fife County: 1959-1963.	27
3.01	Location Of New Establishments: Fife County; 1959-1967.	34
3.02	Distribution Of Insured In Industry: Fife County: Mid-1959.	57
3.03	Distribution Of Insured In Industry: Fife County: Mid-1963.	58
3.04	Distribution Of Insured In Industry: Fife County: Mid-1967.	59
3.05	Trends In Mining And Quarrying: Fife County: 1959-1967.	62
3.06	Trends In Shipbuilding And Marine Engineering: Fife County: 1959-1967.	63
3.07	Trends In Other Manufacturing Industries: Fife County: 1959-1967.	64
3.08	Trends In Textiles, Clothing And Footwear: Fife County: 1959-1967.	65
3.09	Trends In Paper, Printing And Publishing: Fife County: 1959-1967.	66
3.10	Trends In Engineering And Electrical Goods: Fife County: 1959-1967.	67
3.11	Trends In Other Industries In Manufacturing: Fife County: 1959-1967.	68
3.12	Trends In Industrial Employment: Fife County: 1959-1967.	76
4.01	Fife Coalfield: Population And Industry	84
4.02	Fife Coalfield: Collieries And Settlements.	85
4.03	Fife Coalfield: Administration Areas.	91
4.04	Fife Coalfield: Limits And Extent.	93
4.05	East Fife Coalfield: Solid Geology.	94
4.06	Central Fife Coalfield: Solid Geology.	95
4.07	West Fife Coalfield: Solid Geology.	96
4.08	East Fife Coalfield: Location Of Collieries.	103
4.09	West Fife Coalfield: Location Of Collieries.	114

<u>MAP.</u>		<u>PAGE.</u>
4.10	Fife Coalfield: Productive Capacity: 1947-67.	136
5.01	Linoleum And Leather Cloth Manufacturing: Fife County: 1959-1967.	152
5.02	Paper And Board Manufacturing: Fife County: 1959-1967.	155
5.03	Shipbuilding And Marine Engineering: Fife County: 1959-1967.	160
5.04	Textiles And Clothing Manufacturing: Fife County: 1959-1967.	163
5.05	Manufacture Of Hosiery And Other Knitted Goods: Fife County: 1959-1967.	164
5.06	Spinning Manufacturing: Fife County: 1959-1967.	167
5.07	The Manufacture Of Clothing: Fife County: 1959-67.	170
5.08	Electronics Manufacturing: Fife County: 1959-1967.	172
5.09	Manufacture Of Other Machinery And Industrial Plant And Steelwork: Fife County: 1959-1967.	181
6.01	Fife County: Changes In Net Daily Movements Of Male Labour: 1959-1966.	190
6.02	Fife County: Daily Movements Of Male Labour: 1966.	191
6.03	Fife County: Changes In Net Daily Movements Of Female Labour: 1959-1966.	192
6.04	Fife County: Daily Movements Of Female Labour: 1966.	193
6.05	Fife County: Distribution Of Population: 1951, 1961 And 1966.	195
6.06	Fife County: Distribution Of Working-Age Population: 1951, 1961 And 1966.	197
6.07	Fife County: Changes In Population: 1951-1961.	199
6.08	Estimated Net Migration By Age And Sex: Fife County: 1951-1961.	202
6.09	Fife County: Changes In Population: 1961-66.	203
6.10	Fife County: Housing Completions By Local Authorities And Scottish Special Housing Association: 1945-1966.	219
6.11	South Fife: Increase In Road Traffic Frequency: 1962-1965.	223

6.12	Part Of Fife County: Average Volume Of Daily Traffic In Passenger Car Units: 1963.	223
6.13	Fife County: Main Roads In 1966: Proposed East Fife Regional Road.	224
6.14	Fife County: Slum Clearance: 1955-1966.	228
6.15	Central Fife: Farmland Owned And Land Occupied By The National Coal Board: 1965.	230
6.16	Schemes To Improve Dereliction: Location In Central Fife: 1958-1967.	237
6.17	Lochore Meadows: Land Use: 1965.	238
6.18	Lochore Meadows: Proposed Land Use.	239
7.01	Fife County: Location Of New Industries: 1945-1957.	241
7.02	Fife County: Location Of New Establishments: 1958 - Mid 1967.	244
7.03	Fife County: Premises And Sites In Location: Engineering And Electrical Establishments: 1958 - Mid 1967.	259
7.04	Fife County: Premises And Sites In Location: Textiles-Clothing And Other Industries In Manufacturing: 1958 - Mid 1967.	260
7.05	Industrial Estates: Fife County: 1967.	262
7.06	Fife County: Advance Factory Construction: 1959-1968.	264

LIST OF FIGURES.

VOLUME II

<u>FIGURE</u>		<u>PAGE</u>
4.01	Coal Production In Fife: 1947-1967.	86
4.02	Manpower In Fife Coalmining: 1947-1967.	87
4.03	East Fife Coalfield: Productivity: Face And All Workers: 1947-1967.	88
4.04	West Fife Coalfield: Productivity: Face And All Workers: 1947-1967.	89
4.05	Productive Units In Fife Coalmining: 1947-1967.	90
4.06	Scottish Coalfield: Generalized Section Of Strata.	92
4.07	East Fife Coalfield: Production: 1947-1957.	105
4.08	East Fife Coalfield: Average Annual Output Per Man: 1948-1957.	105
4.09	East Fife Coalfield: Productivity: Face Workers: 1947-1957.	107
4.10	East Fife Coalfield: Productivity: All Workers: 1947-1957.	107
4.11	East Fife Coalfield: Manpower: 1947-1957.	108
4.12	East Fife Coalfield: Manpower Per Unit: 1948-1957.	108
4.13	East Fife Coalfield: Average Output Per Unit: 1947-1957.	111
4.14	East Fife Coalfield: Economics Of Operation: 1951-1957.	111
4.15	West Fife Coalfield: Production: 1947-1957.	117
4.16	West Fife Coalfield: Manpower: 1947-1957.	117
4.17	West Fife Coalfield: Average Annual Output Per Man: 1948-1957.	120
4.18	West Fife Coalfield: Productivity: Face Workers: 1947-1957.	120

FIGUREPAGE

4.19	West Fife Coalfield: Productivity: All Workers: 1947-1957.	121
4.20	West Fife Coalfield: Manpower Per Unit: 1948-1957.	121
4.21	West Fife Coalfield: Average Output Per Unit: 1947-1957.	123
4.22	West Fife Coalfield: Economics Of Operation: 1951-1957.	123
4.23	Coal Production In Fife: 1957-1967.	127
4.24	Manpower In Fife Coalmining: 1957-1967.	128
4.25	Fife Coalfield: Productivity: Face Workers: 1957-1967.	130
4.26	Fife Coalfield: Productivity: All Workers: 1957-1967.	131
4.27	Fife Coalfield: Economics Of Operation: 1957-1967.	133
4.28	Fife Coalfield: Average Annual Output Per Man: 1957-1967.	139
4.29	Fife Coalfield: Average Manpower Per Unit: 1957-1967.	140
4.30	Fife Coalfield: Average Output Per Unit: 1957-1967.	141
6.01	Fife County: Registered Unemployed By Sex: Mid-Year 1959-67.	213
6.02	Fife County: Registered Male Unemployed By Sector: Mid-Year 1959-67.	215
6.03	Fife County: Registered Female Unemployed By Sector: Mid-Year 1959-67.	217

LIST OF APPENDICES.

VOLUME II

APPENDIX

PAGE

5.01	Fife: Production Of Paper And Board.	158-159
5.02	Fife: The Electronics Industry: 1967.	173
5.03	Fife: Other Machinery: 1967.	182
5.04	Fife: Industrial Plant And Steelwork.	184
6.01	Muircockhall Training Centre: 1967.	222
6.02	Central Fife: Schemes To Ameliorate Dereliction: 1958-67.	236
7.01	New Establishments In Fife: 1945-57.	242
7.02	Industrial Estates In Fife: 1967.	261

LIST OF PLATES.

VOLUME II

<u>PLATE</u>		<u>PAGE</u>
5.01	Linoleum Factory: Kirkcaldy.	153
5.02	Linoleum Factory: Kirkcaldy.	153
6.01	Urban Blight: Cowdenbeath.	225
6.02	Urban Blight: Lumphinnans.	225
6.03	Urban Blight: Lochore.	226
6.04	Derelict Land: West Of Crossgates.	226
6.05	Derelict Land: South Of Lumphinnans.	231
6.06	Derelict Land: Lochore.	231
6.07	Derelict Land: East Of Kelty.	232
6.08	Derelict Land: North Of Lochgelly.	232
6.09	Derelict Land: Lochore Meadows.	233
6.10	Derelict Land: Lochore Meadows.	233
6.11	Derelict Land: Lochore Meadows.	234
6.12	Land Restoration: South Of Westfield.	234

"Central Fife as a growth area 1959-67: a geographical appraisal".

by

John McNeil.

Errors and Omissions.

1. References and footnotes, Chapters I, II, and IV to VII inclusive
----- for Scottish Development Department, (1963) read Great
Britain, Parliament, Cmnd.2188, 1963.
2. Chapter V----- for references 160 to 241 read 151 to 232.
3. Page 1.09, line 17; page 2.35, line 26; and page 2.37, line 13;
----- for 1899 read 1890.
4. Page 3.34, line 16 ----- for Table 3.05 read Table 3.04.
Page 3.34, line 17 ----- for col.8 read col.7.
5. Page 4.45, line 21; Tables 2.02, 2.08, 4.40, 4.41, 6.04 to 6.07
inclusive and 6.09 to 6.11 inclusive; and Maps 2.07 to 2.09
inclusive and 6.08; ----- for censusses read censuses.
6. Maps 4.02 and 4.04 to 4.09 inclusive refer to the 1947-67 period;
Map 4.03 refers to the 1952-60 period.

J. McNeil.

ABSTRACT

This thesis is concerned with an attempt by government to reduce regional inequalities in economic development within the United Kingdom by inducing growth in one of the peripheral lagging regions. More particularly, from a geographical vantage point it investigates in detail industrial development between 1959 and 1967 in Central Fife, an area delimited arbitrarily by the Labour Exchange Areas of Inverkeithing, Burntisland, Cowdenbeath, Kirkcaldy and Glenrothes (Map 1.01).

The study is closely associated with the Central Scotland Programme for Development and Growth (1963), which utilizes the idea of the growth pole as a mechanism for economic expansion. Central Fife is one of the designated growth areas in this programme, and is examined here within the context of the growth area concept in its application to regional disparities in development.

The economic base of the study area is in process of transition from an over-dependence on declining and slow growth industries to an increasing emphasis on newer growth-type industrial activities capable of generating further expansion. This investigation examines the problems in such a transition and the changes which have taken place during the period under study. These changes are significant in the development of Central Fife; in particular, by 1967, the introduction of industries in electronics had initiated the emergence of a growth pole, the first essential of polarized expansion. Furthermore, the available evidence suggests that development and growth in Central Fife will accelerate in the post-1967 period; only a rising rate of net emigration in the productive age groups of the labour force is a possible limiting factor in this assessment.

Chapter I.

INTRODUCTION.

"For unto every one that hath shall be given, and he shall have abundance; but from him that hath not shall be taken away even that which he hath."¹

The validity of this quotation when applied to regional development is readily observable at the international level. "For the world as a whole the gap between the rich and the poor is widening."² It is equally observable and valid in its application to regional inequalities within national economies and it is in this context that it is relevant to this thesis.

This thesis is essentially a geographer's appraisal of an attempt to reduce regional disparities in economic development within the United Kingdom by inducing growth in one of the less favoured areas. The choice of topic stemmed from the writer's interest in regional inequalities and problems in development, an interest which in the early stages was one mainly of observation and description rather than investigation and attempted explanation, and one in which a background of life in North Lanarkshire was a significant conditioning factor. Here was an area conversant with the problems of overspecialization in industries hit hard by the economic depression of the 1930's and where, even in the immediate post-1945 period, "security of employment irrespective of the level of returns" was considered a worthwhile goal; similarly, personal experience in the Lanarkshire coalmining industry between 1950 and 1957, when pit closures and the attendant implications of seeking alternative employment or migrating were distinct and

pressing realities, brought forcibly home the problems of areas based on declining industries and in process of economic transition. This awareness of the problems of regional inequalities was subsequently heightened and given a more definite direction when, as an undergraduate in geography at Edinburgh University, the writer's interest progressed from observation and description into attempted explanation of the causes of regional disparities in development. The publication of the controversial White Paper, "Central Scotland A Programme for Development and Growth,"³ presented the opportunity to apply this undergraduate training to a study of practical value. This thesis is the product of this application.

At its publication in November, 1963, the programme for development and growth in Central Scotland was the latest of several attempts to alleviate the problems of regional inequalities in the United Kingdom. In several crucial aspects it differed radically from every previous effort to aid the lagging regions of the country. Notably, it was a much more positive and comprehensive approach to solve the difficulties confronting Central Scotland. It recognized and stated not only the symptoms but also the causes of the problems facing the region; and it was also the first attempt to view the needs of the entire area from a regional vantage point. It accepted the need for a broad-based attack to generate growth and development in the region; it stressed the need for government to induce this growth and development; it emphasized the correction of the imbalance in the economic base of the area, compared with previous measures which aimed at alleviating social distress in the form of unemployment; and finally, the programme utilized the growth area concept as its framework for development, a concept which provided a positive growth

mechanism for the development of the entire region.

The recognition of the significance of the growth area concept as a "vehicle" in the development of the Central Scotland region represented a radical departure from earlier attempts to solve the economic and related social problems of the area. In this concept the concentration of investment on selected focal points considered to have the potential for growth and development was critical to the entire programme.

".....rapid industrial and other development can best be secured in specific areas within the region which offer especially favourable growth prospects."⁴

Growth at these points was expected to spread into the wide catchment areas associated with them and thus generate economic development throughout the entire region.

"Indeed by forming focal points of especially vigorous economic development particular growth areas will help create a favourable climate of growth in the wide catchment areas associated with them."⁵

Obviously the Central Scotland programme assumed that the region as a whole possessed the potential for growth: it also assumed that by adopting certain measures in a positive, comprehensive approach, this potential would be realized throughout the entire region, and since investment would be concentrated in the selected "growth areas", these focal points were believed to have the greatest potential in the region.

"The survey on which the present programme is based has shown that Central Scotland has many advantages. Its geographical compactness, the ease of access from the major industrial areas to beautiful country and to the widest range of sporting and recreational facilities, and the metropolitan attractions and shopping facilities of Glasgow and Edinburgh, are all assets which can be exploited. Moreover, the high degree of industrial skill and adaptability of the population, the resources of labour, and the extent to which much new growth is taking place are factors of real significance. Already certain

parts of the area have shown remarkable capacity for change and expansion. It is these districts (of which the new towns and places like Grangemouth are the best example) that point the way to what can be achieved in the future by integrated investment, deliberately concentrated and designed to promote faster growth. To reduce unemployment, to modernise Scotland's economy and to keep more of our people at home the Government have therefore decided to adopt the following measures."⁶

Another feature of the growth area concept as used in the programme for development and growth, and one especially relevant to this study, was that inducements would be necessary if the assumed potential in the designated growth areas was to be realized,⁷ these inducements to be provided by the measures outlined in the programme.⁸

From the above background emerged the topic for this thesis, namely, Central Fife as a Growth Area, A Geographical Appraisal. The purpose of the study was to investigate in detail the nature and the degree of the problems of development and growth in Central Fife between 1959 and 1967,⁹ and to identify and assess both the changes effected in this period and the forces determining these changes, and so test the hypothesis that, given certain inducements, Central Fife could justify its selection as a "growth area" as defined in the Central Scotland programme.

This stated purpose of the thesis obviously carried implications involving the areal focus of the study, its scope and content and mode of approach. The wide scope and comprehensive nature of regional development in general and, in the present context, of the Central Scotland programme in particular, rendered it impossible to investigate in detail every element in the programme for development and growth. Similarly, to study every growth area in Central Scotland would have been beyond the limits of feasibility

in terms of time, manpower and available resources. Thus, to avoid superficiality a calculated choice was made of key elements of the Central Scotland programme, elements which were then studied in the areal context of Central Fife. This selection reduced the scope and content of the study to manageable proportions.¹⁰ In terms of mode of approach the stated purpose of the thesis demanded a problem-orientated approach, emphasizing a detailed analytical assessment of the selected elements and their interrelationships in the chosen areal focus.

The selection of Central Fife as the setting of this thesis was a rational decision based mainly on three reasons. Firstly, but of least importance, the area was accessible to Edinburgh and the consequent savings in time in the collection of data was a very practical consideration. Secondly, and of much greater significance in the decision, a rapid preliminary survey indicated that Central Fife contained most of the elements noted in the Central Scotland programme, particularly those in the older industrial areas where the assumed growth potential required a greater degree of inducement. Thirdly, and of equal significance as the second reason, the relative recency of such developments as the rapid decline of coalmining (the economic mainstay of the county), the expected completion of the Forth Road Bridge, and the designation of parts of Fife as development districts, first in 1960 and again in 1963, suggested Central Fife as a meaningful areal focus for the study.

For the purpose of this thesis Central Fife was in many respects a microcosm of the entire Central Scotland region. Its problems were similar; unemployment was rising and activity rates were low indicating an underutilization of labour;¹¹ and population

was ageing and showing only slow growth, trends in which high and age-selective net emigration was a critical causal factor.¹² The underlying cause of these problems was also similar, the economic base being too dependent on declining and slow growth activities to absorb the available labour and generate growth.¹³ Development district status for part of the Central Fife area in 1960¹⁴ had indeed reduced the full impact in the declining sectors, but for longer-term sustained growth it was obvious that a more positive approach was necessary. Like the other older industrial "growth areas" in the Central Scotland programme, Central Fife contained zones of urban blight and physical dereliction in urgent need of rehabilitation.¹⁵ It also contained a new town, Glenrothes, which constituted a potential "tool" for regenerating the region,¹⁶ where, despite a limited degree of success in attracting new industry, progress up until 1963 had been slow and laborious. Finally, like Central Scotland as a whole, Central Fife suffered from the effects of geographical marginality which hindered the introduction of new industries from the south.

The selection of Central Fife as the areal focus for this thesis was also favoured by the recency of developments affecting the area, a recency which enabled a clearer definition and assessment of factors influencing changes in the area to 1967 than would have been possible in most of the other designated "growth areas". The Central Scotland programme stressed the need for improved communications within the Central Industrial Belt of Scotland and south to England;¹⁷ and the expected completion of the Forth Road Bridge linking Fife with the Lothians would provide a basis on which to assess the role of communications in the changes in Central Fife

in the period under study. Similarly, the recent attainment of development district status for parts of Fife in 1960 and again in 1963¹⁸ offered the opportunity to evaluate the direct impact of this status on the area and to generally assess the significance of government in the development of the region. Moreover, the location of some new engineering and electronics establishments in Central Fife in the 1958-63 period afforded the opportunity to trace their development and assess their potential for forming an economic growth-pole. Finally, Central Fife as an areal focus was favoured by the rapid change in the fortunes of the coal industry which had been expected to be the economic growth sector of the 1960's; its rapid decline from 1959 provided the chance to evaluate the direct impact of this contraction on the industrial base and on the social distributions in the area as well as its less direct repercussions on the planning process in Fife. All of these recent developments were effective in the choice of Central Fife as the areal framework for this study.

The Central Fife "growth area" as defined in the programme for development and growth¹⁹ forms a quadrilateral whose apices are the urban settlements of Inverkeithing, Kelty, Leslie-Glenrothes and Kirkcaldy; it is bounded on the west by the proposed M-90 route to Perth, by the A-914 on the east and the coastline of the Firth of Forth on the south. (Map 1.01). The somewhat arbitrary nature of the delimitation of this area tends to belie the significance of its selection as a focal point for investment (p. 1.03), but this is a minor criticism since the dynamic nature of the growth area concept precludes precise areal delimitation (Chapter II). Moreover, to assess Central Fife as a growth area it was necessary

to extend the analysis of the various distributions well beyond its limits as defined in the Central Scotland programme. As an economic geographical unit the industrial arc of Fife from Dunfermline Burgh to Leven represented a more meaningful zone in which to test the hypothesis of this thesis. (Map 1.01).

The industrial arc is the social and economic heart of Fife. It contained 80.8% of the county's population at the 1961 decennial census and holds the largest urban settlements in Fife including the large burghs of Dunfermline and Kirkcaldy, and Buckhaven and Methil, Cowdenbeath and the agglomeration around Lochgelly. (Map 1.01). (Chapter II). It dominates the industrial structure of the county; every major industry in the county is concentrated in this area and in mid-1963, 83.8% of the total insured population, 92.4% of the total insured in industry and 88.1% of the total insured in manufacturing were employed in this industrial arc. (Chapters II, III). However, this area of industrial concentration also formed the problem area of the county in mid-1963. It held 96.0% of Fife's registered unemployed at that time, the absolute rise in unemployment between 1959 and 1963 exceeding the total increase for the county. (Chapter II). The principal industries in the economic base in 1959 were either declining (e.g. coalmining, linoleum manufacturing) or showing only slow growth (e.g. shipbuilding and marine engineering; textiles; paper, printing and publishing.) (Chapter III). Emigration, particularly in the younger age groups, was high and rising (Chapters II, VI). Overall, it was obvious that the area required an infusion of new industries capable of expansion, firstly to combat rising unemployment and secondly to strengthen the economic base by

replacing the declining and/or slow growth industries as the economic mainstay of the county, a transition which was the fundamental objective of the programme for development and growth.²⁰ It was against this background of problems that Central Fife was designated a "growth area" in the Central Scotland programme noting that this status was based on potential for growth and not on actual expansion trends in the area.²¹

Another characteristic of Central Fife significant in the context of its status as a "growth area" lay in its spatial relationship to the rest of Central Scotland and to England. Central Fife was peripheral in industrial Central Scotland, an appendage to the core area in Clydeside. Here, the relative isolation of Central Fife as a result of its location north of the Forth estuary, which had hindered communications in the historical development of the area, was to be noted. However, the progressive improvements in the material linkages with the rest of the central industrial belt (e.g. Forth Rail Bridge (1899) and the Kincardine Road Bridge (1938)) had reduced the effects of this marginality in the past, while the opening of the Forth Road Bridge in 1964 would usher the county into the national network of road transportation. Relative to England, Fife was even more marginal and particularly so to the core area centred in London and the Midlands which were the principal markets and sources of raw material supplies for the new industries locating in the county. (Map 1.02). (Chapters V, VII). However, as in the relationship to Central Scotland, the detrimental effects of this marginality was being reduced by improved communications to the south, improvements stressed as essential in the programme for development and growth.²²

It has been stated that the purpose of this thesis carried implications for the scope and content of the study as well as for its areal focus (p. 1.04). The nature of regional development demanded that this thesis be fairly broad-based and comprehensive in its approach. The evaluation of Central Fife as a "growth area" required the analyses of a wide range of physical, social and economic data as well as the identification of relationships among these diverse distributions. Such analyses had to be sufficiently detailed to avoid superficiality and herein lay a dilemma in that the study had to be broad-based and comprehensive in scope and yet detailed in content and examination. Since selectivity was essential, it was decided to limit the scope of the thesis by choosing key elements for detailed investigation and studying the others to a level of detail only in proportion to their impact on these selected elements. The choice of the key distributions was made only after a thorough examination of the Central Scotland programme which revealed an emphasis on economic elements with social and physical elements as secondary yet significant. The central theme of the programme was the attraction of new growth-type industries into the designated "growth areas" and this conditioned the importance both of the other elements in the programme and of the measures necessary to achieve its aims. Equally significant was the use of the growth area concept as the theoretical background and mechanism for expansion and as the basis for the development of the region. This deliberate selection of key distributions not only permitted the detailed analysis considered necessary by the writer but also, along with the choice of Central Fife as the areal focus for the study, effectively reduced

the scope of the topic to manageable proportions. Thus this thesis stresses the industrial base of Central Fife, with particular emphasis on the 1958-59 to 1967 period: the other elements outlined in the programme for development and growth are considered only as they affected this main theme. (Chapters III - VII).

The above decisions to emphasize the industrial base of Central Fife influenced the mode of approach to the study and also its final content. Since this thesis is essentially a geographer's appraisal of an attempt to reduce regional disparities in economic development in the United Kingdom, the method of approach was geographical dealing in the description, analysis, interpretation and explanation of the distributional patterns of the various elements in Central Fife considered relevant to the execution of the study. Moreover, the approach was problem-orientated since any assessment of Central Fife as a "growth area" (as defined in the Central Scotland programme) required the correct identification and the accurate appraisal both of the problems of the area and of the causes of these problems. Only thus could one establish a norm or datum from which to evaluate the changes taking place in the area and the impact of the measures used to tackle the problems in hand, and so reach conclusions on the potential of Central Fife as a growth area and on the inducement necessary to achieve growth and development.

The content of this thesis was obviously conditioned by its purpose and aim, by its areal focus, by its scope and by its problem orientation. The use of the growth area concept as the theoretical framework for the Central Scotland programme necessitated the detailed study of this concept and its relevance to and

implications for an evaluation of Central Fife as a growth area. This study constitutes Chapter II of this thesis. It will be shown that although this concept is basically economic in character it has significant geographical connotations in its application in a spatial context. The adoption of the growth area concept to regional inequalities in development and its use in explaining the current United Kingdom situation is developed in this chapter, leading to its application in the Central Scotland programme and the implications of this application to Central Fife.

Chapter III considers geographical aspects of the industrial base of Fife in the 1959-67 period and includes discussion of the justification for accepting industrial employment as a meaningful index by which to measure the economic trends in any area. The detailed analysis of the industrial base identified the principal industries in the economic base and their distribution throughout Fife; it indicated the trends in the various industrial sectors in the area, enabling the identification of declining, slow growth and growth industries in the economic structure; it showed clearly the importance of the new industries to growth and development in Central Fife; finally, it indicated the emergence of a potential economic and geographical growth-pole in the Kirkcaldy-Glenrothes area and the beginnings of the effects of polarization in this zone on the surrounding area.

The entire content of Chapter IV consists of a detailed investigation of the coalmining industry in Fife from 1947 to 1967. This industry was the key distribution in the social and economic geography of the county. It was the designated "growth point" of development for the 1960's but this potential never materialized.

Indeed, from a potential growth industry in the 1950's it became the problem industry of the county in the 1960's. The rapid decline of coalmining from 1958-59 was critical for Fife, particularly in its effects on the trends of employment, unemployment and migration, and on planning the future development of the entire county.

Chapter V consists of a detailed study of the major industries in Fife in the 1959-67 period as defined by the analysis of the industrial base in Chapter III. This was essential to ascertain their respective strengths and weaknesses and potential for growth. From this study it was obvious that none of the significant industries in the industrial base of the area in 1959 possessed the potential for growth and that only the new industries introduced from 1959, notably those in electronics, had expanded during the 1959-67 period and had the potential for further expansion.

The content of Chapter VI covers in detail those other elements and distributions selected as significant in assessing Central Fife as a "growth area". These elements were labour, its availability and suitability; transport and communications with an emphasis on road movements; and physical decay and dereliction. The first two were particularly critical in attracting the new industries essential to the growth and development of the area, the impact of the third being less direct and more effective in a social than in an economic context.

Chapter VII recognizes the crucial importance of the new industries in the evaluation of Central Fife as a growth area. It covers industrial location in Fife from 1945 noting the significance of the 1958-67 phase in its effects on the growth and development of the Central Fife area. This phase initiated far-reaching changes

in the industrial base of the county, witnessing the introduction of new growth-type industries mainly in branch establishments of large English- and North American-based concerns, many of international repute. This chapter analyzes the type, size and impact of these new industries on Central Fife. It also probes into the factors relevant to their location in the area, factors which were operative both within and outwith the limits of Fife County. Overall it represents a key chapter in the assessment of Central Fife as a growth area.

The conclusions of the study are contained in Chapter VIII which summarizes the findings in each of the previous chapters. These conclusions show that Central Fife warranted its selection as a "growth area" as defined in the programme for development and growth. Despite pressing problems caused by the rapid decline of certain key industries and slow growth in others, and by high and rising age-selective net emigration, the designated area had utilized assets of available trainable labour, space, and improving transport linkages to attract growth-type industries which, by 1967, had not only effectively offset the contraction in the problem sectors of the industrial base but had also laid the foundations of a more diversified and stronger economic base, one which was conducive to expansion. This attraction of industries capable of generating growth required inducements, notably those provided by the benefits of development district status and by improvements in infrastructure. Overall, by 1967, an economic growth-pole based on electronics was emerging in Central Fife with the attendant geographical growth-pole centred in Kirkcaldy-Glenrothes, and the area was on the verge of substantial industrial development and expansion.

REFERENCES AND FOOTNOTES.

- ¹St. Matthew, XXV, v. 29.
- ²Fryer, D.W., (1965), World Economic Development. McGraw-Hill Book Company, New York, etc. p. 12.
- ³Great Britain, Parliament, Parliamentary Papers (House of Commons & Command), Central Scotland, A Programme for Development and Growth, Cmnd. 2188, 1963, H.M.S.O., Edinburgh.
- ⁴Ibid., para. 101.
- ⁵Ibid., para. 104.
- ⁶Ibid., para. 9. See also paras. 43-53.
- ⁷Ibid., Chapters 4-7.
- ⁸Ibid., paras. 16-33.
- ⁹Footnote. This stems from the opinion of this author that insufficient detail was known of the precise nature of the selected individual growth areas and of some of the elements in the Central Scotland programme (see e.g. paras. 84 and 92).
- ¹⁰Footnote. While this decision to reduce the scope and content to manageable proportions was successful, the problem of superficiality and degree of detail necessary remained throughout the entire study period.
- ¹¹Scottish Development Department, (1963), op. cit., para. 37.
- ¹²Ibid., paras. 35-36.
- ¹³Ibid., para. 34.
- ¹⁴Footnote. The designated development districts in 1960 consisted of the Ministry of Labour Exchange Areas of Dunfermline-Inverkeithing, Cowdenbeath, Burntisland, Leven and Anstruther.
- ¹⁵Scottish Development Department, (1963), op. cit., paras. 83 and 106 (iii).
- ¹⁶Ibid., paras. 9 and 106.
- ¹⁷Ibid., para. 60.
- ¹⁸Footnote. The designated development districts in 1963 consisted of the Ministry of Labour Exchange Areas of Dunfermline, Inverkeithing, Cowdenbeath, Burntisland, Kirkcaldy, Glenrothes and Leven. The inclusion of Kirkcaldy and Glenrothes, omitted in the 1960 designation, was notable.

¹⁹Scottish Development Department, (1963), op. cit. See diagrammatic map at end.

²⁰Ibid., para. 45.

²¹Ibid., para. 106 (iii).

²²Ibid., paras. 60-74.

Chapter II

THE GROWTH AREA CONCEPT:

ITS RELEVANCE AND IMPLICATIONS TO CENTRAL FIFE.

The theoretical background to the programme for development and growth in Central Scotland lay in the growth area concept. (p.1.11).

"The concept of 'pôle de croissance' is one the French theorized about years ago as a means of competing more successfully with the pull of the national metropolis; and their inducements to this end are the exemplars upon which the two British plans (for the Scottish Central Belt and NE England) are fundamentally formed."¹

This concept has both economic and geographical implications. It is essentially the recognition of observable economic trends which have their geographical expression in the areal concentration of economic activity. As such it represents a dynamic phenomenon and is associated with the theory of unbalanced growth in its application to regional inequalities in development.² The growth area concept not only aids in explaining the evolution of these inequalities but has also been used as a framework for programmes to reduce the economic gaps between regions. The Central Scotland programme is one such application.

The Growth Area Concept: Definitions and Implications of the Elements Involved.

Fundamental to the understanding of the concept are the ideas of the growth-pole, the dynamic process of polarization, and the zones, regions and axes of development. These elements are basically economic in character and can be expressed in formal economic terms. However, since in their material forms they function in an areal setting, they have significant geographical connotations. It is this latter aspect which is important in the context of this thesis.

Economically, a growth-pole has been defined in several ways to varying degrees of precision and, although its precise nature remains somewhat vague and indeterminate, these definitions give some insight into its characteristics. Boudeville states that it is a set of expanding industries capable of generating further economic activity.³ Perroux defines it as a point of growth,

"Elle (la croissance) se manifeste en des points ou pôles de croissance."⁴

and again as

"Un ensemble d'unités motrices qui exerce des effets d'entraînement à l'égard d'un autre ensemble économiquement ou territorialement défini."⁵

A growth-pole is thus a functional entity consisting of a propulsive industry (or an assembly of propulsive industries) and other economic activities subsidiary to the propulsive industry. The former dominates the structure and the functioning of the pole and, as a result of connections and linkages formed in time, gives birth to, and subsequently growth in, the latter. The propulsive industry acts as a "leader" to the others which respond to changes effected by it. In time the pole may expand to form an industrial concentration with the forging of economic linkages among its industries.⁶

Inherent in the definitions of the growth-pole is the dynamism involved. It is not a static phenomenon but one which is capable of initiating change and given sufficient force it can affect an entire national economy. This dynamic or functional aspect of the growth-pole concept is the process of polarization.

"Elle (la polarisation) constitue l'aspect fonctionnel du pôle de croissance."⁷

In the preceding paragraphs the growth-pole and polarization have been considered solely in economic terms. They function in economic space of which Perroux has defined three types, namely

homogeneous space, space as a field of forces, space plan.⁸ These spaces are formal or abstract phenomena which define themselves by the economic connections existing among their constituent economic elements. By contrast, geographical space, which is of interest here, is a material phenomenon and is intimately concerned with the growth area concept in its applied form. Economic spaces and geographical space are not synonymous.

"Espaces économiques et espace géographique sont deux concepts tout à fait différents. Car malgré les apparences du langage, il ne s'agit pas de deux espaces d'un même genre mais bien de deux genres de nature radicalement différents."⁹

Considered individually and in isolation, these two notions of space, the one formal and the other material, carry radically different ideas and implications. However, a relationship exists between them since in their material forms the elements and linkages in economic spaces express themselves in geographical space.

"Il échoit au géographe de projeter les considérations économiques dans l'espace, de les situer dans le complexe des relations localisées."¹⁰

The economic activities comprising the growth-pole have location in geographical area. The process of polarization initiates centripetal and centrifugal forces which affect both the pole and its zone of influence, a zone delimited geographically at any stage of analysis by the economic linkages created by these forces. Thus the growth-point concept can be described and analyzed in geographical or spatial terms.

An important feature of this relationship between economic spaces and geographical space is that it is a two-way affair.

"Espace géographique et espaces économiques s'influencent donc mutuellement."¹¹

Events in economic space affect geographical space and vice versa. Beguin stresses that in this context geographical space does not merely imply the polar co-ordinates of a point in area but carries all the implications of the concept of the geographical "milieu" and the elements comprising this "milieu" together with their relationships.¹² The geographical "milieu" can be favourable or unfavourable to polarization.

"Les divers effets économiques issus d'un pôle de croissance se propageront avec une facilité plus ou moins grande selon les structures des espaces géographiques dont ils auront à subir influence."¹³

Milhau expresses a similar opinion.

"Pour qu'un pôle de croissance puisse se développer, il faut que son apparition ait lieu dans un milieu propice. La graine judicieusement placée par la main de l'homme ou par le hasard deviendra arbre ou forêt, ou, au contraire, se desséchera et périra sans germer."¹⁴

Intimately associated with the ideas of the growth-pole and the process of polarization are the zones, regions and axes of development. Like the former, the latter can be described and analyzed in economic terms and, when projected into geographical space in their material forms, also in geographical terms. In the context of the growth area concept, the polarized zone or region¹⁵ represents, in geographical terms, the zone of influence of the growth-pole. The area so defined depends on the economic integration, stimulated and forged by polarization, for its delimitation and constitutes a geographical functional zone. The axes of development are the material linkages within this integrated area.

Equally important as the above elements to the understanding of the growth area concept is the geographical concentration of activities effected by polarization. This concentration of economic

activity is an observable fact.

"The concentration of development, especially industrial, in a few parts of the world, is widely recognized."¹⁶

This concentration is a consequence of growth either of existing industries or by the creation of new industries and results from the intensification of economic activities due to proximity and human contacts.¹⁷ The economic basis for this concentration in geographical space is that it creates significant internal and external economies around the economic growth-poles, economies which tend to give momentum to the growth cycle and perpetuate the pole. This concentration of economic activity is matched by social agglomeration in urban centres. Growth-poles are often urban-industrial concentrations.

The Growth Area Concept and Regional Inequalities.

It has been pointed out that the growth area concept represents a dynamic phenomenon and is associated with the theory of unbalanced growth in its application to regional inequalities in development. (p. 2.01). It has been particularly effective in explaining the developmental process creating these regional inequalities and in its utilization to foster growth and development in the lagging regions.

The basic premise of the concept in this context is that economic growth emerges at points or poles in the economy and spreads, with varying intensities, by various channels. Given sufficient force this process can affect the entire structure of a national economy in which it operates.

"Elle (la croissance) se manifeste en des points ou pôles de croissance, avec des intensités variables; elle se répand par divers canaux et avec des effets terminaux variables pour l'ensemble de l'économie."¹⁸

Milhau stresses the essential nature of the pole and polarization in

the process and also the varying intensity rate and direction of spread from the pole as well as the significance of the "milieu" in conditioning these elements of spread.

"Voilà le fait essentiel. La vie économique ne se développe jamais d'une manière uniforme sur toute l'étendue d'un territoire donné. Il ne s'agit jamais d'un phénomène se propageant par ondes sphériques dans un éther isotrope, mais d'ébranlements partis de certains épicentres et cheminant plus ou moins vite dans les diverses directions, tantôt amplifiés, tantôt amortis par le milieu."¹⁹

Further, since the appearance of these poles is a prerequisite to economic growth and development it follows that

"...inter-regional inequality of growth is an inevitable concomitant of growth itself."²⁰

Perroux envisages growth in a national economy as a series of active poles combined with passive sectors dependent on these poles for their creation and expansion through the process of polarization.²¹

Further, the locations of the growth-poles and their linkages, when projected in their material forms into geographical space, determine the patterns of regional inequalities in growth.

Thus in any analysis of economic activity, growth at any point in time, is necessarily unbalanced, both economically and geographically. No static equilibrium exists. Milhau sums this up effectively.

"Dans le temps, on observe des périodes de progrès accéléré suivies de phases de ralentissement et de stagnation. Dans l'espace, certaines activités périmées sont en déclin alors que les industries répondant à des besoins nouveaux connaissent une expansion qui surprend parfois les entrepreneurs; des régions sont en déclin alors que d'autres attirent les hommes et les capitaux de tout le pays."²²

A feature of this emergence of growth-poles and the polarization they activate is that the entire process affects not only the areas of growth but also those peripheral to them. It initiates both

centripetal and centrifugal forces,²³ the former detrimental and the latter advantageous to the marginal areas. Regional inequalities in growth in any economy are a function of the balance between these forces. In practice, particularly in a situation of free market conditions, this balance favours the growth zones, at least in the initial stages. Factors, both economic and non-economic, increase the attraction of the growth areas for new enterprises and at the same time reduce the pulls of the peripheral zones. Industrial linkages and concentration are effected in the polarized regions and strengthened in time; capital, labour (which is often age - and skill - selective) and enterprise are drawn to the growth areas, often from the marginal areas; as the scale of operation expands and concentration intensifies, efficient transport, services, research and technical facilities, a highly-skilled labour force, build up to create significant economies for industries in the growth zone; full employment, increased incomes and profits stimulate the demand for, and the provision of, improved amenities and physical environment in the growing regions; a psychological "climate" of superiority emerges in the prosperous areas. This is the "backwash" of polarization creating increasing regional inequalities in any economy.

Against this "backwash" effect of polarization must be weighed the "spread" effects. The balance between them conditions the degree of regional inequalities in any economy. The centrifugal effects can be beneficial to the marginal areas but in practice they seldom ever equal those of "backwash" unless other factors are introduced into the economic cycle. However, it is admitted that a limit exists to the widening gap in economic growth between regions. In this context

Myrdal states that

"Trees can never grow as high as heaven."²⁴

Hirschman claims that when the cleavage between the growth and the lagging regions begins to assume an apparent permanency then economic pressures create a move towards a healing process.²⁵ Perroux implies a similar conclusion by the statement that

"Le pôle était un foyer de prospérité et de croissance, il devient un centre de stagnation."²⁶

In this situation the conditions in both the growth and the lagging regions must be conducive to the weakening of the "backwash" effects and/or the strengthening of the "spread" effects. Several factors, which vary in particular situations, can affect the balance between these forces. The initial rapid growth in the pole can level off; market demands can alter; speculation and investment can level out or decline or be transferred to other outlets.²⁷ The geographical concentration effected by polarization can attain the level of over-concentration unless the spatial arrangements of the elements involved are efficient. This over-concentration increases the costs of inputs, both public and private, into the area. External economies gained in the development of the polarized zone can change to diseconomies in terms of rising costs of land, of labour and in the provision of adequate transport and services.

Given these conditions the lagging regions often have advantages to offer in the growth and development of the national economy. This is particularly effective in periods of economic expansion²⁸ when the "spread" effects are much stronger, especially in economically-advanced societies with their developed transport and communications networks, available labour, comparable educational facilities and standards, and where the problem of growth is not one

of the peripheral regions completely lacking the roots for development. In these circumstances the economic gulf between the regions is not insurmountable but will require inducements, especially in the initial stages of development, to transmit growth and to stimulate the lagging areas towards the goal of self-sustained growth.²⁹

The recognition that the growth area concept is a dynamic phenomenon in which trends can be modified has led to its use as a framework for programmes to alleviate these problems of regional imbalance in any given economy. The application of the concept in this context assumes several basic premises. Growth-poles emerge in economies and "only the emergence of one or several growth-poles can have a lasting effect and transform regional decline into expansion";³⁰ human endeavour and action are essential in the creation and the development of these poles;³¹ a favourable "milieu" is a prerequisite for the emergence and growth of the poles and conditions both the appearance and the rates of growth achieved by them.³² These premises are obviously inter-related.

Accepting that growth-poles are the key to regional development, their emergence can be spontaneous or, given a favourable "milieu", can be induced by human action. The role of government in this context can be significant depending on the degree of control it exerts on the life of the country concerned.³³ Government action is often essential to stimulate growth in the lagging regions. In capitalistic, free enterprise economies, the role of government in inducing growth-poles in any particular region is secondary to the calculations of the private entrepreneur. They merely influence the final decisions of the latter to locate in any area.

"On ne crée pas arbitrairement, à coup de décisions réglementaires, en économie capitaliste, une industrie motrice, un pôle de croissance; par contre, on peut faciliter, ou précipiter, la naissance d'une telle industrie motrice quand les conditions favorables à son essor ont été révélées par l'analyse économique et par le calcul des entrepreneurs."³⁴

The state, in a capitalist economy, thus acts to entice, rather than compel, industries to locate in lagging regions. It can accomplish this by providing fiscal and financial incentives to such industries locating in designated areas and/or by "social overhead capital" to remove obstacles which deter location in these areas. In this action by government, aid must not aim at "watering a regressive region with a regular rainfall of subsidies which will reverse the trend"³⁵ but should be meaningfully invested to foster and facilitate growth in emerging growth-poles or in those which have growth potential. The ability to recognize such poles is crucial to the success of the application of the concept.

A favourable geographical "milieu" is fundamental to the emergence and development of the growth-pole. Milhau and Beguin both emphasize this point.

"Pour qu'un pôle de croissance puisse se développer, il faut que son apparition ait lieu dans un milieu propice. ... Une région candidate à la croissance économique doit renfermer certaines virtualités, c'est à dire des richesses naturelles et des hommes capables de vouloir et d'agir."³⁶

"Les divers effets économiques issus d'un pôle de croissance se propageront avec une facilité plus ou moins grande selon les structures des espaces géographiques dont ils auront à subir l'influence."³⁷

In this context it is important to note that the geographical "milieu" can be modified to precipitate the polarization process.

"Lorsqu'elles gênent un processus de croissance polarisée, les caractéristiques d'un milieu géographique donné peuvent parfois être modifiées afin d'être mieux adaptées aux exigences de la polarisation."³⁸

All of these aspects of the growth area concept are relevant in its application in the programme for development and growth in Central Scotland.

Regional Inequalities: The United Kingdom Situation

The Central Scotland programme utilized the growth area concept as a basis to promote economic development in the region. It was basically a statement of intended policy to induce this development and growth by the concentration of investment in limited geographical areas which were considered to have the potential for such development and growth.³⁹ Central Fife was one of these areas.⁴⁰

Any valid assessment of Central Fife as a growth area had to consider its setting in Central Scotland and in the United Kingdom as a whole. Its functioning as a potential growth-pole was particularly dependent on the national unit with whose fortunes it was inextricably linked. The Scottish Economy is an integral part of that of the United Kingdom and any programme of regional development had to recognize this essential fact.⁴¹

It has been stated that, in its association with the theory of unbalanced growth, the growth area concept can help explain the regional inequalities in an economy. (p. 2.01). The application of this theoretical background is readily apparent in the United Kingdom situation.⁴² The main zone of polarization is centred in the Midlands and South-East England. The lagging regions are peripheral to this core area of neogenic Britain and, on the criteria of concentrations of industry and population, mainly locate in South Wales, Northern England and Central Scotland.

The evolution of this pattern indicates the dynamism of the

growth-pole concept. The lagging regions were growth-poles in the nineteenth century created by the development and growth of industries based on local coal and iron resources. The polarization process effected the urban-industrial concentrations which developed on the coalfields. Growth continued into the present century but since World War I these areas have experienced declining status in the national economy.

This period of relative decline in the older areas occurred as rapid expansion was taking place in the Midlands and South-East of England. New growth-poles, characterized by a high degree of industrial linkage and based on science and technology, were emerging in this area. They had a high growth potential. Their location was at market⁴³ and was facilitated by the freedom provided by the development of electrical power and flexible road transport. Despite sizable, concentrated markets the older industrial areas failed to attract these new industries. Their "milieu" was not conducive to this new growth (p. 2.04); they continued to emphasize the coal-based industries which were still expanding as the new growth-poles were emerging in the other parts of the country; they possessed a labour force with skills unsuited to the new industrial techniques; they had developed an environment of dereliction which repelled the emerging growth-poles. Overall, they had reached the situation described in general terms by Perroux.

"Les concentrations d'hommes et de capitaux fixes et fixés, les rigidités des installations et des structures qui avaient accompagné le développement du pôle font sentir aussi toutes leurs conséquences quand commence son déclin; le pôle était un foyer de prospérité et de croissance, il devient un centre de stagnation."⁴⁴

Thus the pattern of regional inequalities in the United Kingdom was the result of the cumulative effects of polarization in the

Midlands and South-East of England and the relative decline of former growth industries in the peripheral regions. The rate of polarization in the emerging growth-pole was quickened by the simultaneous "push" from the marginal areas. This economic "pull" and "push" was the "backwash" of the process which widened the emerging gap between the regions and created economic and social problems in the country. The symptoms of these regional differences surfaced during the interwar period in the form of unemployment and inter-regional migration, both of which favoured the present zone of polarization. (Tables 2.01 and 2.02).

The regional inequalities in the United Kingdom were brought home forcibly by the high rates of unemployment and associated social distress experienced by the peripheral areas during the economic depression of the 1930's. The recognition of these problems initiated government action to ameliorate the situation. The Special Areas Acts were introduced to help alleviate unemployment.⁴⁵ The growing conviction of the detrimental economic, social and strategical effects of the increasing concentration of industry and population mainly in the growth zone was given expression in the Barlow Report.⁴⁶ The recommendations for industrial dispersal proposed by this report were enacted in the Distribution of Industry Act of 1945 with subsequent modifications in 1950 and 1958.⁴⁷ The Local Employment Acts of 1960 and 1963⁴⁸ completed this series of legislative measures in which the basic policy was to channel industrial employment into the lagging, peripheral regions to control unemployment and alleviate social distress. While none of these measures could claim unqualified success they diversified the hitherto-specialized industrial structures of these regions and

reduced the impact of contraction in their declining industries.⁴⁹ Moreover, in the longer term view, they engendered an economic "milieu" more conducive to more positive and comprehensive programmes for development and growth, programmes such as that for Central Scotland.

The Central Scotland Programme for Development and Growth

The programme for development and growth in Central Scotland was conceived against this background. At its publication, it was the end product of the evolution of regional planning in the United Kingdom begun in a rudimentary fashion in the Special Areas legislation. As such it possessed similarities to previous legislative measures but also contained significant differences. Notably, it was a much more positive and comprehensive approach to solve the problems confronting the region than had hitherto been attempted. In essence it was the "harnessing of the growth spiral mechanism to a positive planning purpose."⁵⁰

The fundamental problems facing the Scottish Economy are well known and have been publicized,⁵¹ but previous to the "Toothill Report"⁵² attention had been focussed on the symptoms rather than the causes of these problems. The rates of unemployment have been consistently higher than the national norm over a long period (Table 2.03); activity rates relative to those of the United Kingdom were low (Table 2.04); both these indices indicated an underutilization of labour; emigration, even in the relative prosperity of the post-second world war period, was high and was a major contributory factor in the slow growth of population (Table 2.05); industrial production lagged behind the national average (Table 2.06). These were the symptoms of the problems.

Of these symptoms, that of slow growth was closer to the cause of the economic malaise of the country. It was attributable to the industrial structure, which emphasized traditional, "small quantity, specialized production" - type industries most of which were declining or showing signs of slow growth.⁵³ Propulsive-type industries were lacking. To alleviate the problems of unemployment and net migration loss, the rate of growth had to be increased significantly.⁵⁴ The difficulties of adapting the existing industrial structure to meet this challenge indicated that growth-type industries had to be introduced to diversify the structure and make it more conducive to expansion. The measures in the Central Scotland programme were designed principally towards this end. They were embodied in the general framework of the growth area concept.

Analysis of the programme for development and growth in Central Scotland clearly indicated the influence of the growth area concept on it, particularly in its geographical application. Firstly, it recognized the fundamental importance in regional development of the emergence of growth-poles and polarization (p. 2.05).

"...rapid industrial and other development can best be secured in specific areas within the region which offer especially favourable growth prospects."⁵⁵

"Indeed by forming focal points of especially vigorous economic development particular growth areas will help create a favourable climate of growth in the wide catchment areas associated with them."⁵⁶

Moreover, it acknowledged the advantages gained from the geographical concentration of population and industry. The designated growth areas were existing urban-industrial agglomerations.

Secondly, the programme accepted the principle that the appearance of growth-poles can be spontaneous or induced if given

favourable conditions (p. 2.09). The designated growth areas show this effectively. The new towns and the growing urban centres of Irvine and Falkirk-Grangemouth were points of observed spontaneous growth while the older urban industrial areas of North Lanarkshire, Central Fife, the Lothians around Livingston, and the Vale of Leven were designated as areas of potential growth.⁵⁷ Investment would be channeled into these areas to facilitate the emergence of the poles and to speed up the polarization process. These areas were chosen as the epicentres from which growth would spread to revitalize the entire region to self-sustained expansion (p. 2.06).

Thirdly, the theorists on the growth area concept stressed the importance of the "milieu" in the emergence and propagation of growth (p. 2.10). The Central Scotland programme claimed that the region was sufficiently propitious for growth to justify the expenditure proposed.

"The survey on which the present programme is based has shown that Central Scotland has many advantages. Its geographical compactness, the ease of access from the major industrial areas to beautiful country and to the widest range of sporting and recreational facilities, and the metropolitan attractions and shopping facilities of Glasgow and Edinburgh, are all assets which can be exploited. Moreover, the high degree of industrial skill and adaptability of the population, the resources of labour, and the extent to which much new growth is taking place are factors of real significance. Already certain parts of the area have shown remarkable capacity for change and expansion. It is these districts (of which the new towns and places like Grangemouth are the best examples) that point the way to what can be achieved in the future by integrated investment, deliberately concentrated and designed to promote faster growth. To reduce unemployment, to modernise Scotland's economy and to keep more of our people at home the Government have therefore decided to adopt the following measures."⁵⁸

The programme was equally forthright in outlining obstacles to be removed to improve the existing "milieu", attract new industries and precipitate growth. These obstacles were wide-ranging and included physical, social and political phenomena as well as economic. The

infrastructure had to be modernized;⁵⁹ certain areas had to be subject to environmental renewal, rehabilitation and modernization;⁶⁰ industrial and personal mobility had to be facilitated;⁶¹ additional facilities for training and retraining of labour in new skills and techniques had to be provided;⁶² the administration of the phased programme had to be co-ordinated;⁶³ the advantages of the region had to be publicized.⁶⁴ Recognition of the need to remove these obstacles implied that the programme for Central Scotland accepted that the "milieu" could be modified to facilitate growth (p. 2.10).

Any evaluation of the Central Scotland "milieu" had to be relative to the general situation in the United Kingdom (p. 2.11). The national economy was expanding; increasing spatial congestion and labour shortages in the Southeast Quadrant were becoming apparent;⁶⁵ a growing acceptance of the need to aid the peripheral areas and to use unemployment and underemployment as a resource to increase national production was emerging;⁶⁶ previous government action had created a more favourable climate for further development in Central Scotland;⁶⁷ improved communications had reduced the physical marginality of the region and could facilitate the transmission of growth;⁶⁸ the formation of the Scottish Development Department to consider the regional requirements of the entire Central Belt provided the co-ordinating authority essential to regional development.⁶⁹ Overall, the timing was conducive for the introduction of a comprehensive programme for development for Central Scotland.

Fourthly, the programme indicated clearly the obvious need for government participation to generate development and growth in the region (p. 2.09). It was directed principally towards the creation of

an industrial climate conducive to the attraction of propulsive-type industries, augmented by direct positive fiscal and financial inducements to these industries to locate in the region and aided by the negative control of industrial building elsewhere in Great Britain outwith the designated development districts.⁷⁰ This need for government action had been recognized from the Special Areas Act of 1934 (p. 2.13) and had been effective in improving the structure of the Scottish Economy.⁷¹

Fifthly, the growth area concept indicated the need to consider a wide range of factors, non-economic as well as economic, and their inter-relationships in the growth mechanism in the development of any area. The Central Scotland programme accepted this need of a broad-based, comprehensive approach to the growth and development of the region. The proposed measures made this obvious and ranged from direct inducements to industrialists to locate industry in the area to the amelioration of physical decay and dereliction, to the modernization of the infrastructure, to industrial training, to the co-ordination of administration, to publicizing the advantages of the region. This programme (along with that for N. E. England) was the first attempt in British planning to initiate a positive, comprehensive attack on the causes, rather than on the symptoms, of the problems facing a lagging region in the United Kingdom.

The Measures to Promote Development and Growth

It has been accepted that the key to the development of the Scottish Economy lay in its ability to attract propulsive industry to the region (p. 2.15) and at the same time aid existing industries to modernize and become more efficient. The first aim was especially

important and the proposed measures in the Central Scotland programme were designed to achieve this goal. These measures were both indirect and direct, indirect in the form of public investment to remove obstacles hindering the location of new industries in the area and to create an industrial climate conducive to expansion, direct by positive financial inducements to industrialists to locate new capacity in the region. However, even with these positive incentives it was accepted that the negative controls exerted by the government "Industrial Development Certificates" to control further industrial development in the non-assisted areas had to be maintained.⁷²

In this approach to the development of the region most of the proposed measures were already in existence. They had evolved with planning in the United Kingdom and had become more comprehensive and definitive in time. The programme for Central Scotland merely strengthened them where this was considered necessary and co-ordinated them in a statement of policy for the development of the region.

The Central Scotland programme recognized and emphasized the need and urgency of indirect inducements to create a climate conducive to growth and development. These inducements took the form of increased public investment to modernize the regional infrastructure services essential to any modern industrial economy, to endow the available labour force with skills suitable for growth-type industries, and to rehabilitate the physical amenity of the region by the removal of derelict urban areas and landscape.

The modernization of the regional infrastructure included a wide range of facilities such as transport and communications, power and water supplies, housing, schools and urban services.⁷³ Transport

and communications constituted a major item in the programme for development. They represented an important factor in the expansion and location of growth industries in the United Kingdom.⁷⁴ The Central Scotland programme involved every transport medium and envisaged an improved communications network within the Central Belt, to England and overseas.

In terms of the provision of power and water, the respective authorities were stated to be aware of the expected increase in demand on their services. It was concluded that preparations to satisfy this demand were adequate.⁷⁵

The programme for development and growth stated the government's intention to increase the rate of house construction in the region, particularly in the growth areas.⁷⁶ In this, slum clearance and re-development, while remaining a major focus in regional housing policy, would be linked to the developments in new towns and in the growth areas by overspill arrangements; attention was drawn to the need for private housing for sale or for rent on economic terms; to be sufficiently competitive with other areas in Great Britain in the attraction of industry, both public and private housing had to give due regard to amenity and design. It was expected that these measures would facilitate the geographical mobility of labour.

The expected industrial growth with its concomitant geographical mobility of labour would result in the influx of younger elements of population into the designated growth areas. This would require additional investment in educational facilities. Detailed surveys were to be carried out to assess these needs.⁷⁷

The Central Scotland programme also emphasized the training and retraining of labour to create the environment necessary to attract

new industry into the region.⁷⁸ Unemployment represented a resource, especially when compared with labour shortages in the Southeast Quadrant (p. 2.17). This advantage was quantitative rather than qualitative since the labour force had to be trained and retrained in the skills pertinent to growth-type industries. The programme for development and growth incorporated existing measures to ensure an adequate supply of suitable labour throughout the region. The provisions of the White Paper on Industrial Training⁷⁹ concentrated on the training of new entries into the labour force. The Ministry of Labour adult training centres were to be expanded with locations strategically placed in urban centres throughout the Central Belt.⁸⁰ The brunt of labour training would continue to be borne by industry using the advantages of "on-the-job" training. Firms moving into the designated development areas could qualify for financial assistance under the provisions of the Local Employment Act (1963) to defray any exceptional costs of this training.⁸¹ In addition improvements in higher scientific and technological training were to be provided by the further development of the new University of Strathclyde and by an expanded programme of construction of commercial and technical colleges throughout the region.⁸²

Success in the policy of attraction of new industry to Central Scotland, especially to the growth areas, would increase labour mobility in the region. In the long term this would result from the increased rate of house construction but to defray costs in the short term, provisions to facilitate this mobility were incorporated in the programme for development and growth. Firms locating in the designated areas could be assisted financially to cut down costs of travel-to-

work until housing was available in the area; they could receive assistance for the removal and resettlement of key workers; redundant workers moving to development districts could receive aid towards the costs of fares and lodging allowances while seeking accommodation in these areas and then towards the costs of removal and legal expenses.⁸³ These measures were designed to facilitate the geographical mobility of labour in the region. Manpower training facilities would do likewise for mobility between jobs.

The Central Scotland programme also incorporated measures aimed at a general rehabilitation of the region's physical environment to improve the "milieu" of the area.⁸⁴ Attention was focussed on town centres and on the clearance of derelict sites, particularly in those older urban industrial areas designated as growth areas.⁸⁵

Notable in these measures to promote development and growth in the region was the emphasis placed on the "new town" as a vehicle for expansion. The Central Scotland programme recognized the capacity for change and growth shown by these planned centres by stating the intention of the government to increase the already substantial social investment in new town development.⁸⁶ In this, the apparent ability of the new towns to attract industry and, in their capacity as "overspill" centres, labour, together with their strategic locations in, or close to, the older and congested industrial areas throughout the Central Scotland region, would enable them to act as powerful instruments in the regeneration and revitalization of the entire area.

In addition to the above measures to make the Central Belt more attractive to industry, the programme for development and growth stressed the need to provide direct incentives to existing and new

firms to expand or develop new production in the region. The existing provisions of the Local Employment Acts strengthened by those of the 1963 Finance Act were used in this context. The measures were directed towards defraying the costs of premises and the acquisition and installation of new plant and machinery and in the provision of loans and grants.⁸⁷

In the provision of premises, the Board of Trade could erect buildings for sale or lease on favourable terms to industrialists in the development districts, either on individual sites or in industrial estates.⁸⁸ These premises could be purpose-built to the client's specifications or constructed in advance as standard units to ensure an available supply of factory space for industrialists seeking buildings for immediate occupation.⁸⁹ The new towns and certain local planning authorities were given similar rights. Industrialists purchasing premises from these authorities or from the Board of Trade or constructing premises themselves qualified for a standard grant of 25% of the reasonable expenditure incurred in such projects.⁹⁰

The second direct inducement to industrialists in the development districts was a grant covering 10% of the costs of acquiring and installing new plant and machinery.⁹¹ This, with the system of "free depreciation" and increased investment allowances provided by the Finance Act, was considered a real incentive to expansion and modernization.⁹²

The Board of Trade could also, on the advice and recommendation of an advisory committee, give grants or loans to industrialists if it was convinced that this aid would be required only in the initial stages of any undertaking.⁹³

Assessment of the Programme

The programme for development and growth in Central Scotland was not a regional economic plan. It did not forecast or project definite results. Rather was it a prospective, a statement of policy or intent to foster development in the region. As such its tone was one of generalization in which it accepted the ability of planners to set objectives (and measures to achieve these objectives) which no observable trends indicated as probable.

The measures of the programme indicated its "prospective" nature. While it proposed a "properly phased and integrated, co-ordinated programme of improvements in the infrastructure, financed by increased public expenditure on these services,"⁹⁴ it lacked clear definition in some of its proposals. In the provision of communications, only in road construction was there a definite statement of a phased development backed by a stated commitment of capital investment over a set period;⁹⁵ no attempt was made to create an integrated transport policy although the proposed road network would effect efficient linkages among the designated growth areas, the airports and seaports, and to England (Map. 2.01). Surveys had still to be carried out to assess the need for schools and further education in the growth areas,⁹⁶ to prepare physical plans for the Lothians and the Falkirk-Grangemouth areas,⁹⁷ and to evaluate the manpower requirements of selected industries.⁹⁸ These examples help substantiate the conclusion that the Central Scotland programme was a statement of intent rather than a regional economic plan.

The prospective model used by the programme adopted a problem approach. The fundamental problems of the Scottish Economy were outlined; the objectives were set; the measures to achieve these

objectives were assembled within the programme. Grieve has generalized on the aims of the programme.

"...the major principle in our recent broad-brush exercise in planning is to unlock potential activity with the aims of improving the economic climate of the region and of strengthening the basis for a better social and physical pattern of life."⁹⁹

The measures considered appropriate to achieve these aims were in the form of "spontaneous development" by public investment in infrastructure and "rational incitation" policy by direct fiscal and financial inducements to industrialists in the designated areas.¹⁰⁰

The application of the growth-pole concept to planning did not originate in the United Kingdom (p. 2.01) but its adoption in the Central Scotland programme was an innovation in regional planning in this country. It was a new, more positive, comprehensive and longer-term approach to the problems of the region than had hitherto been attempted. Further, the programme for development and growth indicated an attempt to reconcile the divergence between economic and physical planning, a divergence which had been apparent since the Barlow Report.¹⁰¹

Compared with previous measures to aid the lagging regions, the Central Scotland programme was a new and more positive approach to regional planning in Britain. Before its publication, attention had focussed on the symptoms rather than on the causes of the problems facing these areas. The distribution of industry policy attempted to channel industry into areas of higher than average unemployment to alleviate social distress. Such policies represented a negative approach to the development of these "depressed areas". The programme for Central Scotland adopted a new and more positive attitude to

unemployment by viewing it as a potential resource to be developed for the good of the national economy.¹⁰²

The acceptance of the growth area concept as the basis for the programme for development and growth was the most radical innovation in this more positive approach to regional development. It provided a positive growth mechanism for the development of the region. In this, the areas were selected on the criterion of their potential for growth and not solely on their degree of unemployment as in previous legislation. This potential for growth considered the "milieu" of the region. It included physical potential such as the availability of land for expansion in areas of physical attraction near urban-industrial concentrations as in the Vale of Leven,¹⁰³ economic potential in areas such as Irvine, Falkirk-Grangemouth and the new towns where growth was already in progress,¹⁰⁴ and social potential in areas of substantial population and with considerable scope for industrial development as in North Lanarkshire, Central Fife and the Lothians.¹⁰⁵ This recognition of areas on criteria other than unemployment was an innovation in official thinking in British planning, but in Scotland its basis existed in the recommendations of the Cairncross and Toothill Reports,¹⁰⁶ both of which stressed the need for investment in areas of potential growth and rejected the idea that planning the economy of a region should aim at merely alleviating social distress in its surface form of unemployment. This acceptance of the growth area theme was a fundamental change from previous views in British regional planning.

The central theme in the programme for development and growth was the direction of investment into limited geographical areas, the selected growth areas.¹⁰⁷ The selection of these areas was thus crucial to its success. Milhau stressed the significance of this selection

to the growth area concept.

"Or, c'est ici que nous rencontrons la plus grosse difficulté. Comment reconnaître qu'une région porte en elle, à l'état latent, un futur pôle de développement? Comment savoir qu'une région constitue un milieu propice à une réussite économique qui deviendra à son tour source de rayonnement? Comment savoir, à l'avance, que la graine germera?"¹⁰⁸

The amorphous nature of the cartographic delimitation of the growth areas tends to belie the importance of their selection.¹⁰⁹ Despite the claim that this map representation was based on detailed information provided by administrators and research workers in many government departments,¹¹⁰ it is this writer's opinion that insufficient detail was known of the precise nature of the individual areas and their inter-relationships.¹¹¹ However, if one accepts Grieve's statement that the Central Scotland programme was a "broad-brush exercise in planning" (p. 2.25) and also that the dynamism involved in the growth area concept precludes precise delimitation of these areas then this criticism of the cartographic portrayal of the growth areas must rank as a minor one in the overall assessment of the programme.

The approach to the development of Central Scotland was also new and more positive in that it was the first attempt to view the problems of the area from a regional standpoint. It moved away from local pockets of unemployment and considered the entire Central Belt, a meaningful physical, economic and social region which represented the core area of Scotland. In this context, much of the infrastructure improvements and modernization, especially in communications, would take place outwith the selected growth areas. However, this did not exclude possible development in other parts of the region. The existing fiscal and financial inducements to industrialists located in the designated development districts outwith the growth areas

remained in operation.

The Central Scotland programme also moved towards longer-term planning. Previous legislation to steer industry and employment into the peripheral regions was obviously short-term and was essentially the use of legislative measures to bring work to people. Such a policy opened the way to the dangers of a permanent subsidization of declining areas, a policy opposed by those advocating a more positive and progressive approach to the problems of the region.¹¹² Several indices of this longer-term approach exist. Unemployment was treated as a resource to be developed (p. 2.26); the emphasis on infrastructure improvements and modernization was in itself a long-term investment;¹¹³ the programme assured that the inducements available for industry in the development districts would be maintained in the growth areas so long as the economy of Central Scotland as a whole required them;¹¹⁴ the use of the growth point concept and areas of spontaneous or potential growth further indicated the longer-term nature of the programme for development and growth in the region.

The Central Scotland programme was much more comprehensive than previous measures to revitalize the region. Grieve has stated that "the growth point theme is fundamentally a device for using the underdeveloped labour resources in the more favourable parts of the problem underdeveloped areas."¹¹⁵ If this is accepted as the main qualification of the programme, to leave the situation there would be a grave injustice to its comprehensive and positive nature. Previous legislation could make similar claims. The stress placed on infrastructure and the clearer definition of the financial inducements to industrialists¹¹⁶ reject this oversimplified aim of the programme. The

acceptance of the growth area concept including the need to consider the complete "milieu" of the region (p. 2.10) made it essential that the measures to achieve self-sustained growth should consider the physical and social, as well as the economic, requirements and potential of the entire Central Belt.

This comprehensive approach to the physical, social and economic problems in Central Scotland attempted to reconcile the divergence between the two major strands in British planning, a dichotomy which had been apparent since the Barlow Report (p. 2.25). Previous to the Central Scotland programme, policies for urban renewal and redevelopment with their social implications of "overspill" centres had been pursued almost totally independent of those for the distribution of industry to steer industrial development into economically unfavoured regions.¹¹⁷ The growth area policy as utilized in the programme for development and growth in Central Scotland combined physical and economic planning to foster expansion in the region. In this context the new towns were cornerstones in their capacity as "overspill" centres to alleviate congestion in the older industrial areas and in their ability to attract industry.¹¹⁸ The new towns in the Central Belt are strategically located in, or close to, the older congested industrial areas. (Map 2.02).

However, while the programme for development and growth attempted a degree of integration between the two main strands in British planning and constituted a newer, more positive, more comprehensive and longer-term approach to solve the problems of Central Scotland, its prime focus was economic rather than social. The fundamental aim was to diversify and strengthen the economic structure

of the region by the creation of a climate conducive to the attraction of growth-type industries which would correct the imbalance in its industrial structure. Correction of this imbalance by the introduction of growth industries would induce faster economic growth which would rectify the surface problems of unemployment and selective net emigration.

The programme was thus economic in character but with a distinct social flavouring. In this writer's opinion, the priority given to the development of the economic base, with the social and physical environmental considerations as indirect, contributory factors in this as secondary, was correct. The solution of the economic problems of the region was a prerequisite to future growth and development. Success in this objective would revitalize the social and physical environments as the benefits of a stronger and expanding economic base accumulated.

Central Fife as a Growth Area:

Central Fife was one of the growth areas designated in the programme for development and growth.¹¹⁹ This thesis is essentially a geographical appraisal of Central Fife as a growth area. In essence, this implies an evaluation of the two-way relationship between economic growth and the growth area process and the geographical "milieu" of the study area. (p. 203). As such it involved the assessment of the "milieu" of Central Fife, its conduciveness to the emergence and development of a growth pole (p. 210), the degree to which it was modified to make it more favourable for growth (p. 210) and the effects of the growth process upon it. (p. 210).

Accepting as valid the emphasis placed on the solution of the economic problems facing Central Scotland and its constituent "growth

areas" (p. 2.30), this thesis concentrated on patterns of economic distributions. The key lay in the patterns of industrial activity in Fife and in the factors affecting these patterns. This emphasis dictated the weight given to the various distributions considered. It was clearly placed on the industrial base of the county, not merely on those industries attracted to the area in the post-war period (Chapter VII) but also on the older traditional industries. The degree of importance given to other patterns, social and physical, was determined by their influence on industrial development in the region. (Chapter VI).

Adopting the problem approach used in the Central Scotland programme, the symptoms of the problems in Fife were similar to those facing the Scottish Economy (p. 2.14). They differed only in magnitude and detail. Unemployment was rising, activity rates were low, and population was growing slowly mainly as a result of high net emigration. The causes were also similar. Employment was declining as a result of an industrial structure which was too heavily based on declining and/or slow growth industries.

The problems of unemployment in Fife are summarized in Maps 2.03, 2.04 and 2.05. In mid-1963, unemployment in the county was estimated at 5,390.¹²⁰ Spatially, it was concentrated in the industrial arc from Dunfermline to Leven, particularly in Kirkcaldy-Glenrothes and in Cowdenbeath (Map 2.03). Analysis of the percentage unemployed in each area indicated a similar overall pattern but with the "problem" emphasis on Cowdenbeath and Burntisland and on Kirkcaldy-Glenrothes and Leven (Map 2.04).

In terms of trends, unemployment in Fife rose by an estimated 1,583 between 1959 and 1963,¹²¹ an overall increase which masked the

rapid rise in this index from 1961. These trends were most pronounced in the industrial arc referred to above (Map 2.05) and confirmed the "problem" area of the county in this index.

Activity rates in Fife were significantly lower than in Scotland and the United Kingdom as a whole. This was especially true of female activity rates (Table 2.07). Both these indices, unemployment and activity rates, indicated an underutilization of the available labour in the county.

Another significant problem facing Fife at this period was the slow growth of population in which high net emigration was a major contributory factor. The population of Fife in 1961 was 320,692 with an obvious concentration in the industrial belt from Dunfermline to Leven (Map 2.06). This was an increase of 13,914 (4.5%) over the 1951 population. Distinct regional differentiation in population change existed within the county (Map 2.07). Growth was most pronounced in the Kirkcaldy-Glenrothes-Leven area with the exception of Wemyss Parish, was significant in the zone from Dunfermline-Inverkeithing through to Culross and Tulliallan and was noted in Burntisland and in the St. Andrews-Cupar area. Decline was most apparent in the Cowdenbeath-Lochgelly region, in Wemyss and in the rural zones of the East Neuk and North Fife.

The migration component in the determination of population change was important. (Compare Maps 2.07 and 2.08). Only Kirkcaldy D.C. (District of County) had a net immigration between 1951-61. Every other District of County showed a net emigration index, particularly Lochgelly and Wemyss. Overall, between 1951 and 1961 Fife County experienced an estimated net migration loss of 11,039 in the 0-64 age group in 1951, but more significant it lost an estimated 10,875 in the

5-54 age cohorts in that year. (Table 2.08). The age-sex-selective nature of the migration component and its effective distribution in Fife is shown in Map 2.09. It was most obvious in Kirkcaldy and Lochgelly Districts of County.

Basic to the understanding and explanation of the problems of rising unemployment and losses of population as a result of emigration was the decline in the county's employment capacity, a decline due to the over-dependence of the industrial structure on contracting and/or slow growth industries, particularly the former. The employment capacity in Fife declined during the 1953-63 period. Two phases were discernable; growth to 1958 and contraction from 1958 (Table 2.09), a contraction due to the decline in the industrial sector of the economic base, notably in coalmining (Table 2.10). The over-riding cause of this decline in employment and its repercussions on unemployment and net migration was the high degree of specialization in contracting or slow growth industries in Fife. Table 2.11 shows the degree of specialization in the county's industrial structure. The main employing orders in Fife in this period were mining and quarrying, shipbuilding and marine engineering and other manufacturing industries.¹²² It was precisely these industrial orders which experienced contraction in the 1959-63 period (Table 2.12). Growth in the other industrial orders failed to compensate for this decline.

The distribution of the changes in insured population in Fife between 1959 and 1963 indicated regional differentiation within the county. Contraction in total insured population was evident in Cowdenbeath, Leven, Burntisland and Anstruther, notably in the first two. The other four exchange areas increased in employment, particularly Kirkcaldy-

Glenrothes, Cupar and Dunfermline-Inverkeithing (Map 2.10). Maps 2.11, 2.12 and 2.13 show the distribution of changes in insured population in the primary, secondary and tertiary sectors respectively. Comparison of these maps pinpoint the importance of each individual sector in conditioning the distributions in Map 2.10. Of the declining areas, contraction in the primary sector was the determinant in Cowdenbeath and Leven;¹²³ contraction in manufacturing applied in Burntisland¹²⁴ while the insured population in Anstruther declined in all three sectors. In the "growth areas" in this index, Kirkcaldy-Glenrothes exhibited an overall increase in insured population despite decline in the primary sector;¹²⁵ in Cupar, Dunfermline-Inverkeithing and St. Andrews-Tayport overall growth was attributable to increases in the primary and tertiary sectors which offset contraction in manufacturing.

Faced with these problems in the economic base of the area and their impact on unemployment and migration, Fife had to attract growth-type industries. The situation had received government attention in 1960¹²⁶ but the results had not altered the trend towards decline. For development and growth the industrial base required an injection of industries capable of expansion. The selection of the Central Fife "growth area" in the Central Scotland programme indicated that any new industries would be channeled to this area. The application of the growth area concept in this programme necessitated the evaluation of the degree of conduciveness of the "milieu" of Central Fife to growth in 1963. What were the disadvantages of the area to be overcome in attracting new industries? What were the advantages it had to offer? This involved considerations of both situation and site.

While Central Fife had many characteristics similar to the Central Industrial Belt of Scotland it possessed certain local peculiar-

ities differentiating it from the major region. These local conditions and their operation in time had been significant in the area's past development and required assessment in any evaluation of the application of the growth area concept to it.¹²⁷

In terms of situation, Fife had always been a peripheral area in industrial Central Scotland. The developments of the industrial revolution by-passed the county and Eastern Scotland in general and placed the economic and social centre of gravity on the Clydeside region based on Glasgow.¹²⁸ Fife has never fully recovered from this secondary role.¹²⁹ In this historical development the relatively poor physical environment was an important factor. The area lacked the basic resources for the industrialization of the period. It was deficient in iron ore and although coal was available, the presence of ample coal and iron ore in North Lanarkshire, often mined from the same shaft, made that area the centre of the engineering growth-pole which emerged. Moreover, the location of Fife in the east of the country removed it from the developing overseas markets in capital goods.

This differential development in Central Scotland was further aggravated by the relative physical isolation of the county when transport and communications were rudimentary. Fife's peninsular form and the barrier of the Ochil Hills hindered the development of the efficient transport links essential to economic development. The area was tenuously linked to the main industrial core of Central Scotland and to England by way of Alloa and Stirling and while this physical isolation had lessened in time with the opening of the Forth Rail Bridge (1899) and the Kincardine Road Bridge (1938), it was still an effective disadvantage to the development of the area in 1963 when, in

addition, the internal road linkages were unsatisfactory for the speed and density of traffic.

The end product of this historical development was that Central Fife, though industrial to a degree, was very much secondary to the Clydeside industrial concentration. Industry was confined to coal extraction, shipbuilding, textiles, linoleum, paper and board with engineering serving these sectors (Chapter III). The specialization in these industries and their secondary nature in the national setting proved to be a problem in 1963. (pp. 2.31 - 2.34).

In addition to the direct effects of the relatively poor resource base, the physical isolation, and the unsatisfactory transport links on the development of the region, the historical process had left its imprint socially. Attitudes had developed which were not readily amenable to change. Examples of this abound. Miners transferred to Fife as part of the National Coal Board's planned development of the coal industry complained of lack of acceptance by the Fifer;¹³⁰ some industrialists considered the male employees to lack initiative and adaptability;¹³¹ the traditional industries lagged behind competitors in other areas in introducing innovations and in adapting to changing market demands;¹³² the tendency towards parochial viewpoints and the close identification of the inhabitants with their local area hindered a wider outlook necessary for development. The evaluation of these attitudes is based on personal assessment of the area. They cannot be quantified but are relevant in any consideration of Central Fife as a geographical growth area. They required modification to make the climate more conducive to the attraction of new industry.

Another stumbling block to be overcome in the development of Central Fife was the psychological attitude of industrialists con-

sidering location in the area. The polarization process tends to obscure the possibilities and advantages of induced and/or natural growth in lagging regions.¹³³ In this, the magnification of the economic effects of distance and the formation of attitudes which consider the quality of people in the peripheral areas as inferior, can have an adverse effect on the development of these regions, even though these judgements are erroneous.¹³⁴

However, despite these disadvantages, the "milieu" of Central Fife possessed several assets which were potentially attractive to new industrial development.

The area had become less isolated in time as a result of improvement in transport linkages. The opening of the Forth Rail Bridge (1899), the Kincardine Road Bridge (1938) and the Forth Road Bridge (1964) made Central Fife more accessible to the rest of the Scottish industrial belt and to England. In this, the timing of the construction of the Forth Road Bridge was most important. At its inception the "winds of change" were already being felt in the area. New establishments which had located in Fife from 1958 and especially from 1960, when parts became development districts, had tested the area as a suitable location and had found it satisfactory; the attraction of available space and labour contrasted markedly with the deficiencies in these indices in the polarized zone of the United Kingdom; signs of changes in attitudes, both of the indigenous population and of industrialists seeking locations in Fife, were emerging as knowledge and the experience of the area accumulated; Glenrothes New Town was emerging as a force in attracting industry and population. The Forth Road Bridge provided the means to utilize these advantages of the area.

It was a factor, often a major one, in the location of new establishments in Central Fife both previous to, and more so after, its opening.¹³⁵

This was particularly relevant in its use as a link in personal communications to London via Turnhouse Airport.¹³⁶ Overall, it brought industrial Fife into focus as a potential situation for the location of new industry.

In terms of advantages and potential for development derived from conditions of site, the availability of space and labour in Central Fife was important. The lower degree of industrialization and concentration left ample space for new industrial development. The landscape was much less industrial and bespoiled than in other parts of Central Scotland and of the United Kingdom. Only in the Cowdenbeath-Lochgelly area was there a predominantly industrial landscape marred by coal bings. In addition, the area was readily accessible to districts of high physical amenity.

The human resources of Central Fife represented its greatest potential for development. Quantitatively, population was concentrated in the industrial arc from Dunfermline to Leven (p. 2.32); the relatively high unemployment and low activity rates, representing an underutilization of labour, were similarly concentrated in this area (p. 2.32). This availability of population and labour was more significant when placed in the United Kingdom setting where industrial expansion was resulting in shortages of space and labour in the polarized zone (p. 2.17). It had become a resource to be developed.

This assessment of the human potential of Central Fife was not only quantitative but was also qualitative. Industrialists attracted to the area by available labour realized that re-training was

necessary, but the existing industrial background and the quality of general education in the region made this task less formidable than in an area lacking these advantages.

This human potential was enhanced further by the attitude of the labour force. Industrialists stressed the advantages of location in an area like Central Fife characterized by less industrial strife, less militant trade unionism, open to less restrictive practices than in the more highly industrialized West-Central Scotland and in certain other regions of the United Kingdom.¹³⁷

The development of the new town of Glenrothes after an indifferent early phase (Chapter IV) constituted a significant advantage for Central Fife in its attraction of new industries. This was apparent by 1963 (Chapter VII) by which time it was the major focal point for industrial development in Fife. It combined the attractions of labour and space which were becoming dominant factors in the location of industry in the United Kingdom.

Overall, in 1963, signs of potential growth were emerging in Central Fife. Industries locating there since 1958-59 had tested the area and found it conducive to expansion; this helped to break down the psychological aversion to locate in the area. Transport and communications were improving; the Forth Road Bridge was nearing completion; road construction in the Central Industrial Belt and to England was bringing the area closer to the industrial mainstream of the United Kingdom. As a result of government aid from 1960 industry had been attracted to the area; the emphasis on the electrical and engineering growth industries in incoming industry from 1958 laid the basis for further growth (Chapter VII). People were becoming aware of

the potential for development in Central Fife but, to combat the contraction in the traditional industries, the rate of incoming industry had to be accelerated. It was hoped that the measures of the Central Scotland programme would stimulate this acceleration.

The Growth Area Selection

It has been noted that the central theme of the programme for development and growth was the direction of investment into areas with potential for expansion and that the choice of these areas was crucial to its success. (p. 2.26). The selection of the Central Fife growth area was based on social potential and considerable scope for industrial development.¹³⁸ On these criteria it had to be situated in the industrial arc of the county from Dunfermline to Leven. This area alone had the concentrations of population and industry to warrant investment (Maps 2.06 and 2.14). Moreover this area contained the "problem area" of Fife. (pp. 2.31 - 2.34). The area chosen consisted of the Ministry of Labour Employment Exchanges of Inverkeithing, Burntisland, Cowdenbeath, Kirkcaldy and Glenrothes.¹³⁹ Table 2.13 summarizes statistically the importance of the industrial arc and the selected growth area in the social and economic geography of Fife.¹⁴⁰

The importance of the industrial arc in each index shown in Table 2.13 is overwhelmingly obvious (line F.). The selected growth area of Central Fife represented the central core of this industrial and population concentration of Fife (line E). The analysis of the growth area indicated that, in 1963, it did possess potential for expansion as well as problems to be overcome in this expansion. Moreover, geographically, the Central Fife growth area consisted of two distinct sections in which the potential for development was markedly

different.

The potential for expansion in Central Fife was both social and economic. This area contained a substantial share of the county's population (Table 2.13; col. 1) in which growth between 1951 and 1961 was the highest for any area in Fife (col. 2); its proportions of the total insured population (col. 5), insured in industry (col. 6) and insured in manufacturing (col. 7) were also significantly high. In addition, all the main industrial orders in Fife (Table 2.11) were represented in the growth area (cols. 8-13 incl.) particularly papermaking (col. 12), other manufacturing industries (col. 13), mining and quarrying (col. 8), engineering and electrical goods (col. 9) and, to a lesser degree, textiles (col. 11).

Thus the selected growth area had sufficient concentrations of population and of labour with a background in industrial skills to attract new industries and, with the government pledged to help control and improve the efficiency of the older industries,¹⁴¹ it possessed potential for further development.

This social and economic potential was enhanced further by the resiliency shown in the manufacturing sector. Despite contraction in linoleum manufacturing, (Chapter V), this sector had expanded in the 1959-63 period (Table 2.14), an overall growth which was especially important in that it was in part the result of the attraction of new industry in which the engineering and electrical growth sector was significant. (Map 2.16 and Chapter VII). The satisfaction expressed by these industries was a factor indicating the potential of the area for further development (Chapter VII).

The principal problems in this area were in unemployment and in a contracting employment base. The insured population was declining

as a result of a rapid contraction in the primary sector (Table 2.14). This overall fall in insured population was higher than that in the county as a whole.¹⁴² Unemployment in the growth area in mid-1963 was the highest in Fife (Table 2.13; col. 3) and in terms of changes from 1959, the area recorded the greatest increase in the county (col. 4). (Map 2.05). The forecast of continued decline in coalmining (Chapter IV) made it essential that new employment had to be channeled into this area to avoid excessive social distress. For growth it was equally essential that these new industries had to be growth-type industries capable of generating expansion and development. This was the major task confronting the area in 1963. In this, unemployment had to be transformed from a problem into a resource to be developed.

While the above analysis considered the selected growth area as a single unit it was obvious that this area contained two distinct parts which differed markedly in their development potential (p. 2.40). These differences are shown statistically in Table 2.13 (lines A and B). Kirkcaldy-Glenrothes represented the growth area in Fife in 1963; it contained potential for further development. By contrast, the remainder of the selected growth area (Cowdenbeath, Burntisland and Inverkeithing) was the problem area of the county.

In terms of social and economic potential for growth the Kirkcaldy-Glenrothes area was the most favoured in Fife. Its population in 1961 represented 24.8% of the county total (Table 2.13, col. 1). Growth in this index between 1951-61 was the highest in the county and almost equalled the Fife total (col. 2); net immigration was an important causal factor in this growth (Map 2.09).

The emphasis placed on Kirkcaldy-Glenrothes in population

was even more pronounced in insured population. The area was the greatest employer in the county in total insured population (col. 5), insured in industry (col. 6) and, particularly, insured in manufacturing (col. 7); it was the manufacturing heart of Fife. In the manufacturing sector the area was well represented in industries which were expanding at the county level (cols. 9, 11 and 12; also Table 2.12); this growth was tempered by its involvement in other manufacturing industries (col. 13) and to a lesser degree in mining and quarrying (col. 8) both of which were contracting in Fife (Table 2.12).

The potential for further growth in Kirkcaldy-Glenrothes was again indicated in the analysis of trends in employment. Table 2.15 summarizes these trends by sector. The increase in total insured population in this area was the highest of any area in Fife in this period (Map 2.10) and contrasted with the overall decline for the county as a whole (Table 2.09). This increase was the result of expansion in the secondary and tertiary sectors which offset contraction in primary activity. (Maps 2.11 - 2.13 incl.). The growth in the secondary sector, despite decline in linoleum manufacturing, was significant as an index of future potential. This expansion was, in part, the result of new industries attracted to the area since 1958. (Map 2.16).

In 1963 the indications were that the trends established in the 1959-63 period would continue. The primary sector would decline still further with the continued contraction of coalmining (Chapter IV); the growth pattern in manufacturing industry would accelerate with the attraction of new industry, particularly with the designation of the area as a development district in 1963; services would expand to serve a growing population. In this, the ability of Glenrothes New Town

to attract industry and population would be an important asset (p. 2.39). By 1963 it had become the growth point in the development of Central Fife. (Chapter VII).

If unemployment is considered to be a resource to be developed, Kirkcaldy-Glenrothes was the most favoured area in Fife in 1963 (Table 2.13, col. 3) (Maps 2.03 and 2.05). In this capacity it could be attractive to new industry. However the trends in unemployment in the area indicated that it could be a problem. Despite the attraction of new industry to this part of the growth area unemployment was rising (col. 4 and Map 2.05). Employment from these new industries was not sufficient to offset contraction in the older industries and the influx of newcomers on the labour market. The rate of introduction and growth in incoming industry had to be accelerated to absorb this surplus resource.

In contrast to Kirkcaldy-Glenrothes, the remainder of the selected growth area was characterized by its problem nature. This was particularly true of Cowdenbeath. Population, though substantial in the Fife setting, (Table 2.13, col. 1), was declining (col. 2); net emigration between 1951 and 1961 was excessive (Map 2.09) and was the main causal factor in population decline.

The trends in employment in this area were a matter of grave concern. In mid-1963 the area contained a sizable proportion of the county's total insured population (col. 5), its industrial population (col. 6) and its insured in manufacturing (col. 7). Of the six main employing orders in Fife, Cowdenbeath-Burntisland-Inverkeithing was heavily involved in mining and quarrying (col. 8) and to a lesser degree in shipbuilding and marine engineering (col. 10) and papermaking (col. 12). Only papermaking was expanding at the county

level; the other two were declining (Table 2.12).

The trends in employment in Cowdenbeath-Burntisland are shown in Table 2.16. The magnitude of the problems in this area is readily seen in the contraction in total insured population (-21.2%). This was mainly the result of the decline in coalmining in Cowdenbeath (Map 2.11 and Chapter IV). The decline in the secondary sector was due to contraction in Burntisland and masked the growth in manufacturing in Cowdenbeath (Map 2.12). This growth in Cowdenbeath's secondary sector resulted from the establishment of new industry in the area during this period (Map 2.16).

Unemployment in this section of the growth area was high (Table 2.13, col. 3) and was rising rapidly (col. 4 and Map 2.05), and while unemployment could be assessed as a potential resource, here it was a major problem particularly when viewed against the background of a contracting employment base. This area was over-dependent on declining industries (cols. 8-13) to offer optimism for future expansion.

In addition to these problems posed by declining population, contracting economic base and rising unemployment, the Cowdenbeath area was blighted by industrial decay from coalmining (p. 2.38 and Chapter VI). If, as was stated by the Central Scotland programme and by the Toothill Report,¹⁴³ the physical environment was a deterrent to the location of new industry then this was an additional obstacle to be overcome in any proposed development of this section of the selected growth area.

Overall, in 1963, this area was not indicative of growth. Trends suggested that its industrial base would continue to contract; coalmining would continue to decline rapidly (Chapter IV); shipbuilding

would remain unstable (Chapter V); papermaking in this area would not expand greatly (Chapter V). This area desperately required an infusion of new industry if growth was to materialize. Its main hope lay in its location close to the Forth Road Bridge and the proposed construction of the M-90 Motorway to Perth and in its available population and labour force, most of which would require training and re-training.

Thus, in summary, one must conclude that if growth and development were to be realized in Fife, the area selected for investment had to be within the limits of the industrial arc. This area alone contained the concentrations of population, industry, available labour and services to attract new industry. The selected growth area represented the core of the industrial arc. It was essentially a compromise choice, combining the area with the greatest potential for expansion with that experiencing the gravest problems. In both, the location close to the access provided by the Forth Road Bridge and the availability of labour were assets to be developed but it was essential that new industry had to be attracted quickly if contraction in the older industries was to be offset. In this, government policy and its implementation in controlling industrial location in the United Kingdom would be important.

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⁴Perroux, F., (1969), L'Économie du XXème Siècle. (3rd. Ed.) Presses Universitaires de France, Paris, p. 179.

⁵Perroux, F., (1961), L'Économie du XXème Siècle. (1st. Ed.) Presses Universitaires de France, Paris, p. 115, "cited by" Beguin, H., (1963), Aspects Géographiques de la Polarisation, Tiers Monde, vol. 4, 16, p. 581.

⁶Footnote. These linkages are described by various terms by different authors, e.g., Hirschman refers to "backward" and "forward" linkages; Boudeville to "upstream", "downstream" and "lateral" linkages; Estall and Buchanan to "vertical", "horizontal" or "lateral", "diagonal" and "common roots" linkages. In every case these linkages induce significant economies for the industries involved, further strengthening the effects of the growth-pole. See Hirschman, A.O., (1958), op. cit., pp. 98-119: Boudeville, J.R., (1966), op. cit., pp. 113-117: Estall, R.C., and Buchanan, R.O., (1966), Industrial Activity and Economic Geography, (rev. ed.) Hutchinson and Co. Ltd., London, pp. 95-96.

⁷Beguin, H., (1963), op. cit., p. 583.

⁸Perroux, F., (1969), op. cit., pp. 163-165.
Perroux, F., (1950), Economic Space: Theory and Applications. Quarterly Journal of Economics, vol. 64, pp. 89-104.

⁹Beguin, H., (1963), op. cit., pp. 570-571.

¹⁰Ibid., p. 565.

¹¹Ibid., p. 572.

¹²Ibid., pp. 569-570.

¹³Ibid., p. 572.

¹⁴Milhau, J., (1956) La Théorie de la Croissance et L'Expansion Regionale. Économie Appliquée, vol. 9, 3, p. 355.

¹⁵Footnote. Economists often use the terms "zone" and "region" as synonymous. To the geographer they imply the consideration of areas at different scales.

¹⁶Ullman, E.L., (1958), Regional Development and the Geography of Concentration. Papers and Proceedings of the Regional Science Association, vol. 4, p. 179.

¹⁷Perroux, F., (1969), op. cit., p. 188.

¹⁸Ibid., p. 179.

¹⁹Milhau, J., (1956), op. cit., pp. 353-354.

²⁰Hirschman, A.O., (1958), op. cit., pp. 183-184.

²¹Perroux, F., (1969), op. cit., p. 189.

²²Milhau, J., (1956), op. cit., p. 349.

²³Footnote. Myrdal refers to these forces as those of "backwash" and "spread"; Hirschman to "polarization" and "trickling down." See Myrdal, G., (1957), op. cit., and Hirschman, A.O., (1958), op. cit.

²⁴Myrdal, G., (1957), op. cit., p. 35.

²⁵Hirschman, A.O., (1958), op. cit., p. 190.

²⁶Perroux, F., (1969), op. cit., p. 189.

²⁷Ibid., p. 144.

²⁸Wilson, T., (1964), Policies for Regional Development. University of Glasgow Social and Economic Studies, Occasional Papers No. 3, Oliver and Boyd, London and Edinburgh. pp. 1-2.

Myrdal, G., (1957), op. cit., p. 38.

²⁹Hirschman, A.O., (1958), op. cit., p. 190.

³⁰Milhau, J., (1956), op. cit., p. 354.

³¹Ibid., p. 355.

³²Ibid., p. 354, and Beguin, H., (1963), op. cit., pp. 588-589.

³³Milhau, J., (1956), op. cit., pp. 355-357.

³⁴Ibid., p. 357.

³⁵Ibid., p. 354.

³⁶Ibid., p. 355.

³⁷Beguin, H., (1963), op. cit., p. 572.

³⁸Ibid., p. 588.

³⁹Scottish Development Department, (1963), op. cit., para. 11.

⁴⁰Ibid., para. 106.

⁴¹Scottish Council (Development and Industry), (1962), Inquiry into the Scottish Economy 1960-61. Scottish Council (Development and Industry), Paisley, paras. 23.05; 02.38-02.43, and Wilson, T., (1964), op. cit., pp. 1-2.

⁴²Footnote. For a geographical account of the evolution of the industrial and population concentrations in the United Kingdom see Rawstron, E.M., Industry; and Osborne, R.H., Population; both in Watson, J.W., (ed.) with Sissons, J.B., (1964), The British Isles: A Systematic Geography. Thomas Nelson and Sons Ltd., London and Edinburgh, Chapters 16 and 18 respectively.

⁴³Footnote. Despite the concentration of population in the 19th. century growth-poles, London remained the main market area in the United Kingdom. See Rawstron, E.M. in Watson, J.W. (ed.) with Sisson, J.B., (1964), op. cit., p. 304.

⁴⁴Perroux, F., (1969), op. cit., p. 189.

⁴⁵Great Britain, Laws, Statutes, etc., Special Areas (Development and Improvement) Act, 1934, 25 Geo. 5, ch. 1, The Public General Acts, 1933-34.

Great Britain, Laws, Statutes, etc., Special Areas (Amendment) Act, 1937, 1 Edw. & 1 Geo. 6, ch. 31, The Public General Acts, 1937.

⁴⁶Great Britain, Parliament, Parliamentary Papers (House of Commons & Command), Report of the Royal Commission on the Distribution of the Industrial Population, Cmd. 6153, 1940, H.M.S.O., London.

⁴⁷Great Britain, Laws, Statutes, etc., Distribution of Industry Act, 1945, 8 & 9 Geo. 6, ch. 36, The Public General Acts, 1944-45.

Great Britain, Laws, Statutes, etc., Distribution of Industry Act, 1950, 14 Geo. 6, ch. 8, The Public General Acts, 1950.

Great Britain, Laws, Statutes, etc., Distribution of Industry (Industrial Finance) Act, 1958, 6 & 7 Eliz. 2, ch. 41, The Public General Acts, 1957-58.

⁴⁸Great Britain, Laws, Statutes, etc., Local Employment Act, 1960, 8 & 9 Eliz. 2, ch. 18, The Public General Acts, 1959-60.

Great Britain, Laws, Statutes, etc., Local Employment Act, 1963, 11 Eliz. 2, ch. 19, The Public General Acts, 1963.

⁴⁹Scottish Development Department, (1963), op. cit., paras. 43-45.

Self, P., (1964), Regional Planning in Britain, Urban Studies, vol. 1, 1, p.59

⁵⁰Harris, D., (1966), The Idea of the Growth Area, Official Architecture and Planning, vol. 29, p. 577.

⁵¹e.g. see Scottish Council (Development and Industry), (1962), op. cit., pp. 16-26.

Cameron, G.C. and Reid, G.L., (1966), Scottish Economic Planning and the Attraction of Industry, University of Glasgow Social and Economic Studies, Occasional Papers No. 6, Oliver and Boyd, Edinburgh and London, pp. 5-9.

Great Britain, Parliament, Parliamentary Papers (House of Commons & Command), The Scottish Economy 1965 to 1970 a Plan for Expansion, Cmnd. 2864, 1966, H.M.S.O., Edinburgh.

Wilson, T., (1964), op. cit., pp. 3-5.

⁵²Footnote. The "Toothill Report" is the name commonly given to the Scottish Council (Development and Industry) report, Inquiry into the Scottish Economy 1960-61.

⁵³Scottish Council (Development and Industry), (1962), op. cit., para 03.22.

⁵⁴Ibid., para. 23.13.

⁵⁵Scottish Development Department, (1963), op. cit., para. 101.

⁵⁶Ibid., para. 104.

⁵⁷Ibid., paras. 102, 103 and 106.

⁵⁸Ibid., para. 9. See also paras. 43-53.

⁵⁹Ibid., paras. 10 and 17-25.

⁶⁰Ibid., paras. 82-85.

⁶¹Ibid., paras. 13 and 29.

⁶²Ibid., para. 30.

⁶³Ibid., paras. 14 and 31.

⁶⁴Ibid., paras. 15 and 32.

⁶⁵Scottish Council (Development and Industry), (1962), op. cit., paras. 03.40 (1) and 23.25.

⁶⁶Grieve, R., (1965), op. cit., p. 233 and Scottish Council (Development and Industry), (1962), op. cit., para. 23.11.

⁶⁷Scottish Development Department, (1963), op. cit., para. 43.

⁶⁸Scottish Council (Development and Industry), (1962), op. cit., paras. 03.40 (2) and 23.25.

⁶⁹Footnote. This department was formed in 1962 as a direct result of the recommendations of the "Toothill Report". (see Scottish Council (Development and Industry), (1962), op. cit., para. 23.45). Verified by Interview, St. Andrew's House, Edinburgh. 1964. See also Grieve, R., (1965), op. cit., pp. 234-235.

⁷⁰Scottish Development Department, (1963), op. cit., para. 117.

⁷¹Ibid., para. 43.

⁷²Scottish Development Department, (1963), op. cit., para. 117.
Scottish Council (Development and Industry), (1962), op. cit., para. 23.41.

⁷³Scottish Development Department, (1963), op. cit., paras. 57-58. See also Hirshman, A.O., (1958), op. cit., pp. 190-195 on the role of public investment in inducing development in a region.

⁷⁴Scottish Development Department, (1963), op. cit., paras. 57-74.
Scottish Council (Development and Industry), (1962), op. cit., paras. 23.20 - 23.21.

⁷⁵Scottish Development Department, (1963), op. cit., paras. 75-81.

⁷⁶Ibid., para. 87.

⁷⁷Ibid., para. 92.

⁷⁸Ibid., paras. 127-140.

⁷⁹Great Britain, Parliament, Parliamentary Papers (House of Commons and Command), Industrial Training, Cmd. 1892, 1963. H.M.S.O., London.

⁸⁰Scottish Development Department, (1963), op. cit., para. 132.

⁸¹Ibid., paras. 134-135.

⁸²Ibid., paras. 136-137.

Footnote. The University of Strathclyde was formerly the Royal College of Science and Technology. The conferring of university status on the Heriot Watt Technical College in Edinburgh in 1966 also contributed to this aspect of the programme.

⁸³Scottish Development Department, (1963), op. cit., paras. 139-140.

⁸⁴Footnote. See Scottish Council (Development and Industry), (1962), op. cit., paras. 19.01 - 19.20 and 23.39.

⁸⁵Scottish Development Department, (1963), op. cit., paras. 82-85.

⁸⁶Ibid., paras. 141 and 146.

⁸⁷Ibid., paras. 118 and 119.

⁸⁸Great Britain, Local Employment Act 1960, op. cit.

⁸⁹Scottish Development Department, (1963), op. cit., para. 124.



⁹⁰Ibid., para. 118.

⁹¹Ibid.

⁹²Ibid., para. 119.

⁹³Great Britain, Local Employment Act 1963, op. cit.

⁹⁴Scottish Development Department, (1963), op. cit., paras. 58 and 142-154.

⁹⁵Ibid., paras 60-65.

⁹⁶Ibid., para. 92.

⁹⁷Ibid., paras. 84 and 163.

⁹⁸Ibid., para. 128.

⁹⁹Grieve, R., (1965), op. cit., p. 231.

¹⁰⁰See Boudeville, J.R., (1966), op. cit., pp. 48-51; Hirschman, A.O., (1958), op. cit., pp. 190-195; Wilson, T., (1964), op. cit., p. 25.

¹⁰¹Self, P., (1964), op. cit., pp. 59-60.

¹⁰²Footnote. This attitude towards unemployment as a resource to be developed had been strongly advocated by the Scottish Council (Development and Industry). See Scottish Council (Development and Industry), (1952), Report of the Committee on Local Development in Scotland. Scottish Council (Development and Industry), Edinburgh, paras. 3 and 7 and Scottish Council (Development and Industry), (1962), op. cit., para. 23.11.

¹⁰³Scottish Development Department, (1963), op. cit., para. 27 (f).

¹⁰⁴Ibid., para. 26.

¹⁰⁵Ibid., para. 27 (e).

¹⁰⁶Scottish Council (Development and Industry), (1952), op. cit., para. 74 and (1962), op. cit., para. 23.41.

¹⁰⁷Footnote. The distribution of industry policy moved in this direction with the Local Employment Act (1960) with the use of development districts instead of the larger development areas under the Distribution of Industry Acts (1945, 1950, 1958). However, in each case, unemployment remained the criterion for delimitation.

¹⁰⁸Milhau, J., (1956), op. cit., p. 355.

¹⁰⁹Footnote. See diagrammatic map, Scottish Development Department, (1963), op. cit.

¹¹⁰Grieve, R., (1965), op. cit., p. 236.

¹¹¹Footnote. This was one factor in the undertaking of this thesis.

¹¹²e.g. see Scottish Council (Development and Industry), (1952), op. cit., para. 74, and (1962) op. cit., paras. 02.43 and 20.07; Milhau, J., (1956), op. cit., p. 354; Wilson, T., (1964), op. cit., pp. 30-31.

¹¹³See Hirschman, A.O., (1958), op. cit., pp. 190-195 and Wilson, T., (1964), op. cit., p. 20 on infrastructure investment as a long term measure in the growth of a region.

¹¹⁴Scottish Development Department, (1963), op. cit., paras. 3 and 12.

Footnote. Compare this with previous experience of the removal of development district status with improved unemployment situation. See also Wilson, T., (1964), op. cit., pp. 15-16 and Harris, D., (1966), op. cit., p. 577.

¹¹⁵Grieve, R., (1965), op. cit., p. 233.

¹¹⁶Footnote. e.g. Companies purchasing or constructing premises in the designated areas received a standard grant of 25% of the reasonable expenditure incurred in such projects. (See Great Britain, Local Employment Act 1963, op. cit.) Previous to this the grant was fixed at 85% of any excess cost over which the premises could be sold on the open market at the time of application for this grant (See Great Britain, Local Employment Act 1960, op. cit.). Note that the "Toothill Report" recommended that these grants should be standardized. (Scottish Council (Development and Industry), (1962), op. cit., para. 23.41.

¹¹⁷Self, P., (1964) op. cit., pp. 56-60.

¹¹⁸See e.g. Grieve, R., (1965), op. cit., p. 233; Dunning, J.H., (1960), Manufacturing Industry in the New Towns, Manchester School of Social and Economic Studies, vol. 28, 2, pp. 137-159; Chisholm, M., (1962), Location of Industry, Planning, vol. 28, 466, pp. 325-363 especially p. 348; Steele, D.B., (1963), New Towns for Depressed Areas, Town Planning Review, vol. 34, 3, pp. 197-212; Self, P., (1964), op. cit., pp. 59-60.

¹¹⁹Scottish Development Department, (1963), op. cit., para. 106.

¹²⁰Ministry of Labour, Scottish Headquarters, Edinburgh.

¹²¹Ibid. Footnote. The choice of 1959 was dictated by the alterations made in 1958 in the Standard Industrial Classification and by the significance of this year in the industrial geography of Fife. (Chapter III).

¹²²Footnote. Coalmining was the principal industry in mining and quarrying; linoleum manufacturing dominated employment in other manufacturing industries. (Chapter III).

¹²³Footnote. The decline of coalmining was the main cause of contraction in these areas. (Chapter IV.)

¹²⁴Footnote. In Burntisland the secondary sector was dominated by shipbuilding and repairing. (Chapter III.)

¹²⁵Footnote. Growth in the secondary sector in this area occurred despite contraction in linoleum manufacturing which was a major employer. (Chapter III.)

¹²⁶Footnote. The Local Employment Act (1960) designated Dunfermline-Inverkeithing, Burntisland, Cowdenbeath, Leven and Anstruther as development districts.

¹²⁷See Myrdal, G., (1957), op. cit., pp. 41-42 on the need to consider local conditions in the development process.

¹²⁸Smith, A., (1952), The Third Statistical Account of Scotland. Fife. Oliver and Boyd, London and Edinburgh, pp. 46-47.

¹²⁹Scottish Council (Development and Industry), (1952), op. cit., Map p.6.

¹³⁰Heughan, H., (1953), Pit Closures at Shotts and the Migration of Miners, University of Edinburgh Social Sciences Research Centre, Edinburgh, pp. 37-45.

¹³¹Interviews of Industrialists; Fife; 1966-67. See Chapter VI.

¹³²Ibid.

Footnote. See especially linoleum manufacturing, carpet-making and textiles. (Chapter V.)

¹³³Hirschman, A.O., (1958), op. cit., pp. 184-185. See also p. 208.

¹³⁴See Scottish Council (Development and Industry), (1962), op. cit., paras. 09.29 and 23.40.

Footnote. This was apparent from personal interviews with industrialists in Fife. Several located in the area with grave reservations, channeled there by problems of labour and space in their original locations and by the stricter implementation of government I.D.C. policy. Most found they had over-estimated the additional transport costs by location in Fife; several agreed that they had underestimated the quality of labour available. See Chapter VI.

¹³⁵Interviews of Industrialists; Fife; 1966-67.

Macgregor, D.R., (1966), A Survey of the Social and Economic Effects of the Forth Road Bridge with Particular Reference to the County of Fife. Scottish Geographical Magazine, vol. 82, 2, Sept. 1966, pp. 78-92.

¹³⁶Ibid.

¹³⁷Interviews of Industrialists; Fife; 1966-67.

¹³⁸Scottish Development Department, (1963), op. cit., para.27(e).

¹³⁹Ibid., Appendix, p. 43.

¹⁴⁰Footnote. The comparability of statistics used in this section of the thesis was impaired by the use of different areal limits to which they applied. See Map 2.15. However, this limitation did not invalidate the general patterns and conclusions drawn.

¹⁴¹Scottish Development Department, (1963), op. cit., para. 119.

¹⁴²Footnote. The decline in total insured population in Fife between 1959 and 1963 was -2373 (-2.0%) compared with -2579 (-4.8%) in the growth area.

¹⁴³See Scottish Development Department, (1963), op. cit., paras. 82-85, and Scottish Council (Development and Industry), (1962), op. cit., paras 19.01-19.20.

GEOGRAPHICAL ASPECTS
OF THE INDUSTRIAL BASE OF FIFE: 1959-67.

This chapter of the thesis considers the geography of industrial employment in Fife between 1959 and 1967 and for several reasons it represents a key chapter in this study of Central Fife as a growth area. Firstly, it recognizes the importance given to employment in regional planning studies and policies in the United Kingdom in general and in the Central Scotland programme in particular; secondly, in Fife the evaluation of employment was a basic prerequisite in determining the status of the various industries in the county, industries which were instrumental in conditioning the patterns of growth and/or decline within the area; and thirdly, in the assessment of Central Fife as a growth area the analysis of employment was fundamental in ascertaining the strengths and/or weaknesses in the industrial structures throughout the county and was basic as a growth index in polarization.

The acceptance of the above carried several implications. It implied that employment represents a significant and suitable index to measure economic trends in any area; the emphasis on industrial employment assumed that the service sector was a derived function dependent on the industrial base for its well-being; further, the acceptance of the 1959-67 time base used in the study implied that it was suitable for the analysis and assessment of industrial employment in the context of the growth area concept in Fife.

Examination of the various government white papers, reports and acts, and of the voluminous literature on the location of industry policies in the United Kingdom clearly illustrated the importance of industrial employment in this field of research and study.¹ In part, this was the result of the evolution of these policies which were, in the initial stages, aimed primarily at the alleviation of social distress in the form of unemployment (p. 2.13) and partly to the ready availability, and relative comparability and suitability of employment statistics.² In this evolution the weight given to unemployment in the earlier stages moved towards a greater emphasis on employment in the more positive approaches to the regional problem in the present decade. The Central Scotland programme was one such approach.

The programme for development and growth altered the emphasis from unemployment to employment, a more positive attitude which represented a departure from previous official views on this subject. Unemployment was given its rightful status as a symptom of the problems facing the regional economy and was seen as a resource to be developed (pp. 2.25 - 2.26), a policy recommended by both the "Cairncross" and "Toothill" Reports (p. 2.26).

"Location policy is already being administered.....with considerable flexibility. It is desirable, however, that some further modifications should be made. One such modification...., industrial growth should come first, ahead even of unemployment".³

"The slow rate of growth of industrial production and of the size of the labour force have usually received much less attention than unemployment. The almost exclusive emphasis sometimes placed on unemployment in the public decision of Scottish needs would be more appropriate to the conditions in the early thirties than to those of the sixties, and one of the main contentions of our report is the need to create conditions more favourable to growth."⁴

"We make recommendations for turning policies away from undue emphasis on unemployment, for encouraging the growth"⁵

In the opinion of this writer, this change in emphasis was correct and represented a more progressive attitude towards planning for an expanding economic base in Central Scotland.

In addition to this change in emphasis, one must also acknowledge that employment is statistically a much more valid index than unemployment in its practical application in planning. The shortcomings of unemployment statistics as an index of need for new industries have been outlined by several authors.⁶ Unemployment statistics are non-comprehensive and omit "fringe groups" as a result of the voluntary nature of registration; they do not record under-employment based on part-time and short-time working; they do not indicate the numbers actively seeking employment, only those registered as seeking employment;⁷ their use with employment statistics to calculate the percentage unemployed is statistically invalid. By contrast, employment statistics, although only estimates, provide a relatively much stronger basis in assessing growth and/or decline in any area. This higher degree of statistical validity of employment statistics and the more positive emphasis placed on them in planning in the 'sixties dictated the relative weights assigned to employment and unemployment in this thesis. The emphasis lay clearly on employment.

One implication of the acceptance of employment as highly significant to this case study was that it represented a meaningful index to assess economic trends in any area (p. 3.01). Several indices have been used to measure economic trends.⁸ Among them

have been production in terms of physical output, gross value and value added in manufacturing, rate of investment and employment. In dealing with a smaller area such as Fife, employment alone of these indices is meaningful, since the statistics are available to a fine degree of breakdown at an annual interval, are comparable from 1959, and are relatively suitable over a period sufficiently long to gauge industrial trends.⁹ These assets of employment as a growth index contrast with the others mentioned above, in each of which the data are simply not available for analysis at a detailed scale in terms both within the structural groupings and spatially.¹⁰

However, while accepting the general validity of employment as a meaningful index of economic trends, care must be exercised in its use in this context. Decline in employment in any industry does not necessarily classify it as a declining industry.¹¹ This implies the need for a detailed knowledge of the industries in question and their operation in their selected locations. This was accepted in this thesis. Employment to minimum list headings of the Standard Industrial Classification (1958) was used as the basis of the analysis of growth and/or decline in the industries in Fife but it was supplemented by personal evaluations made during interviews of the more important establishments in the main industrial groups in the county and by the consideration of trends in the principal industries in terms of physical and/or gross value production. The latter refers to statistics for Scotland and/or the United Kingdom and thus were acceptable only as approximations in the overall assessment.

A second implication of the importance of employment in this thesis was that the emphasis on industrial employment was valid. It is this writer's contention that for long-term, self-sustained growth

to materialize in Fife, the industrial base had to be diversified and strengthened. Growth in the productive base of any area will generate expansion in the service sector, which is parasitical and dependent on manufacturing and extractive industry and whose size tends to be a function of the size of the population in any area.¹² Further, the basis of Central Fife as a growth area lay in the programme for development and growth which stressed the industrial base in Central Scotland. Any evaluation of Central Fife as a growth area had to have an industrial emphasis.

Finally, the acceptance of the 1959-67 period as the time base for the analysis and assessment of industrial employment in Fife implied that it was suitable. This statement was verified by several factors including the availability and comparability of employment statistics, the impact of changing trends in industries strongly represented in the industrial structure, the emergence of the new town of Glenrothes as a positive growth-point in the geographical and economic "milieu" of the area, and finally, the period of data collection for this thesis.

The statistical data were provided by the Ministry of Labour and were broken down to minimum list headings to each exchange area. They were available for each year from 1959 through to 1967 and the use of 1959 as base year avoided the problems of comparability as a result of changes in the Standard Industrial Classification in 1958.

The suitability of 1959 as base year for the study was further enhanced by changing economic circumstances in Fife. It marked the watershed in the coal industry which altered from a growth industry in the 'fifties to one of rapid decline in the 'sixties, a

change which had a decisive impact on the county's industrial structure (Chapters III, IV). Similarly, 1959 coincided with the start of the contraction in linoleum and leather cloth manufacturing (Chapter V). Both these industries were major employers in Fife.

The expected decline in coalmining, the uncertainty in other industries in the industrial base in 1959 and rising unemployment resulted in parts of Fife receiving development district status. This introduced the intervention of the central government in the location of industry in the county and was instrumental in injecting new industrial employment into the structure and in modifying the geographical patterns of industry. Further, the changes effected by the location of new establishments offset the decline in some of the older industries in the area and laid down a newer and stronger industrial structure which became progressively more conducive to growth, especially from 1963.

Finally, 1959-60 marked the turning point in the development of the new town of Glenrothes as a major attraction for industry and population. In time it emerged as the growth point in the industrial development of the entire county.

Thus 1959 was noted as the year the "winds of change" entered Fife's industrial structure to lay down the basis of a more diversified and stronger economic base. By 1967, the impact of these changes had affected the geography of industrial employment in the county; industrially, the decline in coalmining and in linoleum and leather cloth and the rapid growth in engineering and electrical goods were the most significant changes; spatially, variation in the distribution of the changes in these sectors contributed to the emergence

of Kirkcaldy-Glenrothes as the undisputed geographical growth-pole of Fife; structurally, these changes diversified the industrial structures within the county but only in Kirkcaldy-Glenrothes and, as a result of changes in this area, in Fife itself, were they sufficient to make these structures conducive to growth. Overall, the key to the creation of growth in Fife was similar to that in Central Scotland as a whole (p. 2.15); the industrial structure had to be diversified and strengthened by the introduction of growth industries. This was the task to be accomplished.

The Industrial Base of Fife 1959-67.

The underlying cause of the economic malaise of both Scotland and Central Fife lay in their industrial structures which were over-dependent on declining and/or slow growth industries. These structures were obstacles to growth and their failure to generate expansion was responsible for the recorded symptoms of low activity rates and high unemployment (ps. 2.15 and 2.31).

The analysis of Fife's industrial structure between 1959 and 1967 revealed that it was dependent on a few industrial groups. It was dominated by mining and quarrying (II) with subsidiary ship-building and marine engineering (VII), textiles (X) and clothing (XII), paper, printing and publishing (XV), other manufacturing industries (XVI) and, as a result of rapid growth from 1959, engineering and electrical goods (VI). (Table 3.01). With the exception of textiles and clothing and engineering and electrical goods, the emphasis on the above orders was confirmed by location quotients to the United Kingdom base. (Table 3.01). These six industrial groups employed 86.6% of the total insured population in industry in 1959; the

percentages for 1963 and 1967 were 85.7 and 85.0 respectively.

This specialization in a few industry groups was also applicable to the male and female industrial structures. Mining and quarrying was the principal male employer during the period. Ship-building and marine engineering, paper, printing and publishing, other manufacturing industries and, by 1967, engineering and electrical goods were other significant contributors to the male industrial structure. In the female sector, the structure was dominated by textiles and clothing with secondary emphasis on paper, printing and publishing, other manufacturing industries, food, drink and tobacco (III) and, by 1967, engineering and electrical goods. (Table 3.02). The degree of importance of the six principal industrial groups to both the male and female sectors is shown in this table.

The significance of these principal industrial groups in determining the changes in industrial employment between 1959 and 1967 is shown in Table 3.03. The total insured population in industry in Fife declined by 7,993 (-14.0%) during this period compared with -7,709 (-15.6%) in the main groups. The magnitude of decline in the contracting industries was responsible for this overall fall in industrial employment. This thesis was also valid in both the male and female sectors of industry except that in the latter, the involvement in growth industries in the structure created an increase in employment (Table 3.04).

Thus, in terms of contribution to the industrial base of the county, of specialization relative to the national norm and of the degree of control of changes in industrial employment during the period, the economic base of Fife was dependent on a few industrial groups.

The dependence on mining and quarrying was extremely significant and along with the involvement in other manufacturing industries was responsible for the contraction in the industrial base in the period of analysis. Equally important in the long run was the rapid rise in the status of the engineering and electrical sector which, with the degree of stability exhibited by shipbuilding and marine engineering, textiles and clothing, and paper, printing and publishing, helped ameliorate the total impact of contraction in mining and quarrying and other manufacturing industries. Overall, the industrial structure of Fife between 1959 and 1967 was in a state of flux with some sectors in rapid decline, some changing slowly and one (engineering and electrical goods) expanding rapidly. The situation was as described by Milhau.

"Dans l'espace (Fife in this instance), certaines activités périmées sont en déclin alors que les industries répondant à des besoins nouveaux connaissent une expansion qui surprend parfois les entrepreneurs."¹³

By 1967, the sum of the varying trends in these sectors had altered the industrial structure. Although the total insured population in industry had declined over the period, the industrial structure was more diversified and more firmly based on growing industries than in 1959. Trends implied that the contraction in the declining sector was levelling out and that growth in the expanding sector would accelerate. The economic base had become more conducive to expansion.

Analysis of the Industrial Structure in 1959.

The analysis and evaluation of Fife's industrial structure was made in terms of trends in employment within the county and at the national level and in terms of trends in production in the

principal industries in Fife. In this the statistics on production refer to Scotland and/or the United Kingdom and thus can be accepted only as approximations (p. 3.04).

The industrial structure of Fife in 1959 was specialized in mining and quarrying with subsidiary shipbuilding and marine engineering, textiles and clothing, paper, printing and publishing and other manufacturing industries. (Table 3.01). Analysis to individual industries indicated that these industrial groups were themselves highly specialized. Coalmining (101) dominated in mining and quarrying, linoleum and leather cloth manufacturing (492) in other manufacturing industries, paper and board (481) in paper, printing and publishing, and shipbuilding and ship repairing (370-1) in the shipbuilding and marine engineering group. (Table 3.05). Greater diversification existed in textiles and clothing, in which weaving (413) was the largest employer, and in the engineering and electrical goods sector. (Table 3.05).

This degree of specialization in the county industrial structure in 1959 proved a decided weakness in the 1959-67 period. Specialization in itself does not imply weakness in an economic base; neither does diversification in the structure necessarily indicate strength. The weakness in Fife was that the specialization was in declining and slow growth industries. This constituted an obstacle to growth in industrial employment.

Of the fourteen industry groups used in this analysis, seven contracted and seven expanded between 1959 and 1967, but the degree of involvement of the industrial structure in declining industries and the degree of change in each sector emphasized the importance of the

contracting industries in the county. In 1959, they employed 62.5% of the insured population in industry mainly in mining and quarrying (47.0%) and other manufacturing industries (9.7%). Contraction in this group between 1959 and 1967 was 16,032 mainly as a result of the trends in mining and quarrying (-13,017) and in other manufacturing industries (-2,205).¹⁴

By contrast the seven groups which expanded employed only 37.5% of the industrial population in 1959 and increased by only 8,039 mainly in engineering and electrical goods (+6,126), textiles-clothing (+676) and paper, printing and publishing (+475). In terms of individual industries, growth was pronounced in other machinery (+1,487), telegraph and telephone apparatus (+2,068), radio and other electronic apparatus (+1,543). The expansion in these industries and in hosiery and other knitted goods (+535) and in dresses, lingerie and infants' wear (+395) was the result of the location of new industrial establishments in the county. (Map 3.01).

The above evaluation of the economic base of Fife was made solely on trends in industry within the county without reference to the changes in these industries at the national level. Examination at the local and national levels revealed that, with the notable exceptions of shipbuilding and marine engineering and textiles and clothing, both of which expanded in Fife in contrast to the national pattern between 1959 and 1967, and other manufacturing industries which declined in Fife but expanded at the national level, the trends in the other industry groups were similar.

In the contracting industrial groups the most significant difference in trends was in other manufacturing industries which

expanded in the United Kingdom but declined in Fife. This was the result of the emphasis on linoleum and leather cloth manufacturing in this order in the latter area (Table 3.06).

The analysis of changes in the orders which declined at the national level but expanded in Fife between 1959 and 1967 was more complex. Shipbuilding and marine engineering and textiles and clothing both declined at the national level but expanded in Fife (Table 3.07). The local "milieu" in these industries was responsible for these divergent trends. The shipbuilding industry was concentrated in the naval dockyard at Rosyth and the privately-owned yard at Burntisland. Government contracts gave stability in employment in the former. In Burntisland the emphasis placed on smaller, specialized vessels helped keep the yard in production despite fluctuating market demands.¹⁵ In textiles and clothing, growth at the local level was the result of new establishments in this industry from 1959.

Thus, overall, in terms of trends in employment both within the county and relative to those at the national level, the industrial structure of Fife in 1959 was over-dependent on declining and slow growth industries, particularly the former, to be conducive to growth in this index. The emphasis on coalmining and linoleum manufacturing, both of which contracted markedly between 1959 and 1967, was a decided weakness in the industrial structure and was responsible for the overall decline in industrial employment during the period. The rapid expansion in the engineering and electrical goods sector failed to compensate for this decline but was effective in diversifying and strengthening the economic structure of the county by 1967.

Evaluation in Terms of Production. 1959-67.

Any evaluation of the strengths or weaknesses of an industrial base must consider production as well as employment in the principal industries. The basic problem in such an assessment is the general lack of production data, particularly to small areas. Even a personal survey of the major employing industrial establishments in Central Fife failed to provide data which could be sufficiently comparable for use in an analysis of the industrial structure. This lack of suitable statistics forced the writer to use data in terms of physical production or value, to the Scottish and/or United Kingdom levels.¹⁶ These statistics were supplemented by personal evaluations made in interviews of the industries involved. Thus the data available provided general approximations of the trends in production in the industries concerned.

Coalmining.

Coalmining was the most important industry in Fife in the 1959-67 period. It was not only the largest industrial employer in the county (Table 3.05) but it also experienced the most significant changes of any industry between 1959 and 1967. The rapid decline in employment (-13,067; -49.5%) and in production (-1.8 million tons saleable; -34.6%) marked it as the problem industry in the industrial base. (Table 3.08). This rapid decline was the result of a significant reduction in demand for coal, a trend which initiated a policy of drastic rationalization of production into a few units selected on the basis of economic exploitation. Uneconomic units were closed, units nearing exhaustion run down quickly and this, together with rising productivity from modernization and mechanization from

earlier capital investment, greatly reduced employment in coalmining in Fife. (Chapter IV). Thus, in terms of both employment and production, coalmining in Fife represented a problem, contracting industry in which the rate of contraction was crucial to industrial development. The run down of the industry in the county in the 1959-67 period was too rapid to allow the new industries introduced to compensate for the major loss in employment. Coalmining would continue to decline from 1967 but at a slower rate than in the previous decade. (Chapter IV).

Shipbuilding and Marine Engineering.

Shipbuilding and marine engineering was the second largest industrial employer in Fife during the 1959-67 period (Table 3.01). It represented a declining industry both in Scotland and in the United Kingdom. Production had declined from 1958, -34% in Scotland and -29% in the United Kingdom and was accompanied by reductions in employment of -32.0% (-23,300) in the former area and -28.9% (-88,000) in the latter between 1959 and 1967. (Table 3.09). However, contrary to these trends, the shipbuilding and marine engineering industry in Fife experienced a slight increase in employment (+236; +4.3%) due to local conditions, in which the assured stability of employment in the naval dockyard at Rosyth and the relative success in securing orders for smaller, specialized vessels at Burntisland were important assets. (Chapter V). The future stability of the industry in the county depended on the ability of the privately-owned yard at Burntisland to procure a share of orders for smaller, specialized vessels in conditions of rising intensity in competition in market. (Chapter V). The basis in the Royal Naval Dockyard at Rosyth appeared reasonably secure. Overall, the future of shipbuilding and marine

engineering in Fife was in the balance with fluctuations a reality and decline always a possibility. (Chapter V).

Linoleum and Leather Cloth Manufacturing.

The manufacture of linoleum and leather cloth, which in Fife was concentrated in the production of linoleum and printed felt base floorcoverings, represented another major employer in industry between 1959 and 1967 despite a decline in status during the period (Table 3.01). The indices of employment and production in this industry throughout the United Kingdom defined it as a rapidly contracting industry.¹⁷ Between 1959 and 1967 employment in Fife declined by 48.2% (-2,505) compared with 47.0% (-2,750) in Scotland and 38.9% (-7,000) in the United Kingdom. (Table 3.10). In terms of production, the annual output of linoleum declined substantially both in Scotland and the United Kingdom (-72.4%: -42.2 million square yards) while in printed felt base annual production fell by 73.5% (-21.5 million square yards) in Scotland and 50.4% (-43.4 million square yards) in the United Kingdom. (Table 3.10). In Fife, the linoleum and leather cloth industry was a problem sector in the industrial structure. It suffered from a lack of foresight and adaptation to meet rapidly changing and declining market demands, a failing which heightened the disadvantages of producing in a geographically marginal location. The industry in Fife continued to emphasize linoleum products when trends at the national level indicated a market for printed felt base and then to concentrate on printed felt base as production in the United Kingdom moved into vinyls. (Chapter V). Only the decision of Nairn-Williamson Ltd. to construct a new factory at Kirkcaldy to concentrate on the production of vinyl floorcoverings¹⁸ prevented the

demise of the linoleum and leather cloth industry in Fife. This centralized the firm's production of vinyls in the United Kingdom at Kirkcaldy, a decision in which government industrial location policy was most important.¹⁹ Overall, the decline in this industry, as indicated by employment statistics, had levelled out by 1967 and evidence suggested that any changes in the immediate future would be of a minor nature. (Chapter V).

Paper and Board.

The manufacture of paper and board during the 1959-67 period was always a significant employer in the county and was noted for its stability in the industrial structure. (Table 3.01). Trends in annual production were rising in both Scotland (+113,000 tons; +27.0%) and the United Kingdom (+713,000 tons; +23.9%) at rates higher than those in employment (+900; +5.4% in Scotland and +6,000; +6.6% in the United Kingdom) indicating an increasing efficiency in operation. (Table 3.11). Employment in this industry in Fife expanded at a rate similar to that in the larger areas (+287; +7.8%) and it is assumed that production likewise increased in proportions similar to those in Scotland the the United Kingdom. (Chapter V). Overall, paper and board manufacturing in Fife was facing keen competition in market, mainly from large-scale, integrated production from Scandinavia, competition which would intensify markedly from 1967 with the removal of tariff restrictions on imports into the United Kingdom under European Free Trade Association agreements and also of a temporary import surcharge effective until the end of 1966. (Chapter V). However, the impact of this rising competition on Fife production would be offset by a rising demand for quality products, by the specialization

in growth sectors of the industry under a broader canopy of diversification and by the foresight of the area's producers in increasing investment in modernization and mechanization to meet the challenge of competition. The available evidence suggested that employment in Fife in paper and board would remain relatively stable but production would expand as a result of increasing efficiency from improved organization and mechanization. (Chapter V).

Engineering and Electrical Goods.

The engineering and electrical goods sector represented the economic growth-pole in Fife industry, its rapid growth resulting from the location of new establishments in the area from 1958 (p. 3.11). This group of industries is extremely diverse but in Fife it can be conveniently subdivided into engineering and scientific instruments-electronics, a classification which cuts across the traditional engineering and electrical goods division of the Standard Industrial Classification (1958).

Engineering in Fife was centred in other machinery and industrial plant and steelwork both of which expanded in employment between 1959 and 1967, the former by 1,487 and the latter by 449. (Table 3.07). The manufacture of other machinery in the county covered a diverse range of products, notably mining machinery, space heating, ventilation and air conditioning equipment, hydraulic equipment, parts for printing machinery and industrial pumps and valves. (Chapter V). Indices of production in terms of annual value of output in these various industries were available for Scotland and the United Kingdom and indicated the growth nature of this sector of industry in Fife. The value of production increased in every

industry with Scotland sharing in this expansion. (Table 3.12).

In Fife, the expansion of these industries in other machinery was the result of the location of new establishments, most of which had not attained their anticipated employment capacity by 1967 and, with the expected continued growth in market demand, employment in other machinery will expand in the county, continuing the diversification and strengthening of the industrial structure begun in 1958.

(Chapter V).

Industrial plant and steelwork expanded in employment at a faster rate in Fife (+449; +51.4%) than in Scotland (+6,900; +27.8%) or the United Kingdom (+14,000; +10.1%). As a result of increased efficiency in this industry, the rise in the annual value of production in both Scotland and the United Kingdom was much higher than that in employment (Table 3.13), a trend verified in interviews in Fife (Chapter V). This growth in market demand suggested that industrial plant and steelwork in Fife would continue to share in the general expansion and with increasing attention being paid to modernization, mechanization and more efficient organization of labour, this growth should be accomplished with little change in employment. (Chapter V). In this writer's opinion, stability rather than growth in employment will occur in this industry in Fife in the immediate post-1967 period.

The scientific instruments-electronics sector of Fife industry was the growth-pole in the industrial structure of the county between 1959 and 1967. It was concentrated in the manufacture of scientific instruments, telegraph and telephone apparatus and radio and other electronic apparatus (particularly in electronic apparatus) (Chapter V). The cumulative growth in employment in these industries was the highest of any in Fife and was the result of the location of

new establishments in the county. This growth trend in employment was accompanied by rapid expansion in production indicating the strength of this sector as the economic growth-pole of Fife. (Chapter V).

The manufacture of scientific instruments represented a major growth industry both in terms of employment and production in Fife, Scotland and the United Kingdom. Employment in this industry increased by 541 (+872.4%) in Fife, 2,500 (+45.4%) in Scotland and 25,000 (+21.4%) in the United Kingdom in the 1959-67 period. (Table 3.14). In terms of value of annual output, the increases in production both in Scotland and in the United Kingdom (Table 3.14) were even more emphatic in designating this industry as a major growth point. Obviously this industry in Fife was destined for further significant expansion in the post-1967 period.

The telegraph and telephone apparatus industry was established in Fife only in late-1965 but it was an important employer in the county by 1967. (Table 3.07). It was also relatively new to Scotland but, like Fife, employment expanded rapidly from 1965 (Table 3.15). Data on production were not available until 1966, but trends in the United Kingdom in terms of value of annual output showed the rapid growth of this industry to 1968 (Table 3.15). Thus the available evidence indicated that the telegraph and telephone apparatus industry in Fife would continue to expand in the immediate post-1967 period and would represent an important section of the scientific instruments-electronics sector in the county.

The third main industry in the scientific instruments-electronics sector in Fife was radio and other electronic apparatus, in which the emphasis in the county was on electronic apparatus²⁰ (Chapter V). This emphasis proved a distinct advantage since

production in radio manufacturing was declining rapidly in the United Kingdom whereas that in other electronic apparatus was experiencing a substantial increase (Table 3.16). Like the other industries in the scientific instruments-electronics sector in Fife, the growth in employment in radio and other electronic apparatus (+1543) was due to the location of new establishments in the area, a trend which was expected to continue. (Chapter V).

Overall, the industries in engineering and electrical goods in Fife were expanding. Trends at the national level were most encouraging and augured well for continued growth and expansion. This expansion at the national level was a prerequisite for growth in Fife since it was instrumental in motivating industries in this sector to seek new space, some of which would be supplied by the county. (Chapter VII). In terms of employment, Fife could expect accelerated growth in engineering and scientific instruments-electronics, especially in the latter, as establishments already in the area built up to their planned employment capacities and as more new factories are located in the area (Chapter V). This sector had emerged as the economic growth-pole of Fife between 1959 and 1967. The available evidence indicated that this "pôle de croissance" would be strengthened in the post-1967 period.

Textiles and Clothing.

The manufacture of textiles and clothing represented the other major employing industry in Fife between 1959 and 1967 (Table 3.01) and was especially significant as an employer of female labour in the county (Table 3.02). It was concentrated in the weaving of cotton, linen and man-made fibres with a subsidiary emphasis on

spinning, hosiery and other knitted goods, carpets, weatherproof outerwear and dresses, lingerie and infants' wear. (Chapter V).

The weaving of cotton, linen and man-made fibres was the most significant activity in the Fife textile industry not only in its capacity as the largest employer in textiles but also as a result of its decline between 1959 and 1967. The analysis of trends in employment and production indicated that weaving in Fife, Scotland and the United Kingdom was a rapidly contracting industry (Table 3.17). Between 1959 and 1967 employment in weaving declined in Fife (-357; -15.5%), in Scotland (-2,630; -38.0%) and in the United Kingdom (-50,000; -35.2%), the lower rate of decline in Fife resulting from the involvement in the manufacture of natural and artificial silks, in which market competition was not excessive, and in linen and union fabrics which was expanding slowly in production in Scotland (Table 3.17 and Chapter V). By 1967, weaving in Fife was under severe pressure from rising competition in market, competition in which its competitive status was weakened by the progressive deterioration in the quality of labour, the undercapitalization of the industry, the structure emphasizing small-scale, family-owned establishments and the geographically marginal location (Chapter V). Faced with these problems, the weaving industry in Fife was not expected to expand. The trend to further decline was apparent.

Individually, the other industries in the textile sector in Fife were less important in the industrial structure than weaving but their combined growth in employment between 1959 and 1967 offset the decline in the weaving industry. The expansion in employment in hosiery and other knitted goods (+535) was the result of the

location of new establishments in the county.²¹ Its strength lay in an expanding market (Table 3.18) which minimized the effects of the disadvantages of geographical marginality and the small-scale structure of the industry in Fife. Evidence indicated that the industry will experience little change in employment in the post-1967 period although a limited expansion was a possibility. (Chapter V).

Carpet manufacturing in Fife, despite growth in employment (+229) between 1959 and 1967, was liable to decline as a result of an apparent unwillingness to adapt readily to changing market demands. (Chapter V). Production in the county was centred in the cheaper range of all-wool carpeting²² in which production in the United Kingdom was contracting as demand for tufted synthetic fibre products expanded (Table 3.19). The future of this industry in Fife depended on its ability to compete in a contracting market, a situation heightened by an apparent reluctance to alter production to growth lines in the industry. The company involved was experimenting with machines to produce tufted carpeting²³ but a more ready adaptation to changes in market conditions was essential if decline was to be avoided. (Chapter V).

The spinning industry in Fife was small and very much secondary in importance relative to that in other areas of the United Kingdom and to other textile industries in the county (Chapter V). As a result of the location of a new establishment at Glenrothes it experienced a limited expansion (+143) between 1959 and 1967. Production was in flax-hemp yarns and synthetic fibre yarns for tufted carpets. The increasing emphasis on the latter "growth line" of production strengthened the spinning industry in Fife but with a highly competitive market situation it was unlikely that any major

expansion would be realized. (Chapter V).

The manufacture of clothing in Fife concentrated on the production of weatherproof outerwear and dresses, lingerie and infants' wear. The trends in employment between 1959 and 1967, in which weatherproof outerwear declined (-296) and dresses, lingerie and infants' wear expanded (+395), strengthened this industry in the county since market demand in the latter was rising.²⁴ (Table 3.20). The stability of this industry in Fife in 1967 was dependent on new establishments which had located in the area. These new establishments had saved the production of weatherproof outerwear from extinction and were responsible for the growth in dresses, lingerie and infants' wear. The clothing industry should experience a limited degree of expansion in the post-1967 period (Chapter V).

In summary, the textiles and clothing sector was not likely to experience any major expansion. It was possible that the growth trends in clothing and in hosiery and other knitted goods would continue with the introduction of more new establishments.²⁵ However, the largest employer in this group was declining under fairly severe competition and carpet manufacturing required adaptation to meet changing market demands. Overall, the employing capacity of this industrial group would probably contract in the post-1967 period. Since this sector was the principal employer of female labour in the county this contraction would affect female employment, freeing some for the newer electronics industries entering the area. (Chapter VI).

Summary Evaluation of the Industrial Structure 1959-67.

The analysis of Fife's industrial structure in 1959 indicated weaknesses which were similar to those facing the Scottish Economy

(p. 2.31). It was dependent on declining and slow growth industries. Only in the engineering and electrical goods sector was there any positive indication of potential growth and this potential only emerged at the end of the 1959-67 period as the effects of the location of new establishments in this sector materialized.

The high degree of dependence on contracting industries, particularly on coalmining and linoleum manufacturing, was responsible for the decline in the industrial base between 1959 and 1967. This contraction outweighed the expansion in industries in the growth sectors. Coalmining was a bitter disappointment to Fife. From a "growth industry" in the 1950-59 decade it became the problem industry in the 1960's. Rapidly changing market conditions, rising costs of production, failure to increase productivity initiated the rapid rationalization and pruning of this industry from 1959. (Chapter IV). The linoleum industry also suffered setbacks from 1959 with the closure of one of the two main producers in Kirkcaldy. In Fife this industry lacked the speed in adaptation to adopt new products in rapidly changing market demands.

The impact of the growth sectors on the industrial structure of Fife was less than that of the contracting industries. They employed less than the latter in 1959 and, with the exception of engineering and electrical goods, the magnitude of change between 1959 and 1967 was much lower. Again, even in these groupings, doubts on the stability of certain industries were prevalent. Shipbuilding and marine engineering was showing slow growth in employment in Fife but trends in employment and production at the Scottish and national levels classified it as a declining industry. Its future status in

Fife depended on local conditions which could alter drastically over a short period. The main employers in textiles and clothing in 1959 either declined or showed only slow growth in the 1959-67 period. Production at the Scottish and national levels indicated similar trends. The expansion in this group was mainly the result of the location of new industries and its future would depend on the attraction of other establishments to continue this trend. However, indications were that no large scale growth could be envisaged and decline was a distinct possibility. Of all the major industries in Fife, paper and board was the most stable. Employment and production was expanding slowly but steadily. The principal threat to this industry lay in growing competition in paper production from overseas, particularly Scandinavian, producers. The ability to cope with this competition would determine its future status in the county's industrial structure.

Without doubt, the establishment of industries in the engineering and electrical goods sector was of the utmost importance to Fife's industrial structure. Their rapid growth from 1959 helped offset contraction in the declining sectors. They represented growth industries in terms of both employment and production. They diversified the economic base of the county and strengthened its structure. Moreover, such was their nature, that inter-industry linkage was a possibility; they possessed the potential of "propulsive-type" industries.

This evaluation of the industrial structure was applicable to the entire 1959-67 period but by 1967 significant changes had altered the degree of weakness in the structure. Signs of growth

potential were emerging. Not only was the industrial structure more diversified but it was less dependent on contracting industries. Growth in manufacturing industry had reversed the declining trend in the industrial base. Indications existed that the decline in the main contracting industries would decelerate in the post-1967 period.

The reduction of the emphasis on coalmining and linoleum manufacturing and the expansion in engineering and electrical goods diversified the industrial structure of Fife during the 1959-67 period, the indices of diversification for 1959, 1963 and 1967 being 41.7, 46.4 and 50.7 respectively.²⁶ However, more important than this diversification itself, the changes in the various industries had altered the degree of dependence from the contracting to the expanding industries in the structure. The former employed only 40.0% of the insured population in industry in 1967 compared with 62.5% in 1959. (Table 3.01). The percentages in the expanding sector were 60.0 and 37.5 respectively. Of the six principal employment groups in the structure, the two which declined employed 34.9% of the insured in industry in 1967; the four which expanded employed 50.1% of industrial population at the end of the period. (Table 3.01).

Despite the overall decline in industrial employment in Fife between 1959 and 1967, the secondary sector expanded. This expansion was especially apparent from 1963 and by 1965 had reversed the declining trend in the county's industrial base (Table 3.21).²⁷ These changes were positive indications of an emerging growth potential in the industrial structure of the county.

Equally important to this assessment of the industrial

structure in 1967 were the convictions that the rate of decline in coalmining would decrease as the rationalization of the industry approached completion²⁸ and that the contraction in linoleum manufacturing had virtually reached its nadir by 1967.²⁹

Thus, as a net result of the greater dependence on expanding industries, growth trends in manufacturing and the expected decrease in the rate of decline of the two major contracting industries, the economic base of Fife in 1967 was, without giving any ground for complacency, more conducive to growth than in any year during the period of analysis. The industrial employment "milieu" of the county had become more favourable to growth.

The Industrial Structure: Male - Female Balance: 1959-67.

The structural weakness of Fife's industrial base in 1959 and changes in it in the 1959-67 period had different effects on the male and female sectors. This was the result of the differences in the male and female industrial structures. Male employment was heavily based on declining industries, female employment much less so.

It has been established that industry in Fife was dominated by a few industrial groups and industries within these groups (p. 310). Table 3.22 shows that this domination was relevant in both the male and female industrial employment sectors. The selected orders employed 87.2% of male employees in industry in 1959 and 84.3% in 1967. The percentages for females were 83.8 and 87.0 respectively. Table 3.23 verifies this in respect of the selected individual industries. Table 3.04 indicates a similar conclusion in terms of changes in male and female industrial employment during the period.

Analysis of Tables 3.22 and 3.23 indicated that a degree of

balance existed between male and female employment in industry, a balance which was strengthened by the introduction of additional female employment in the engineering and electrical goods sector during the period. Male industry was centred in coalmining (101), shipbuilding and marine engineering (370), linoleum and leather cloth (492), paper and board (481) and, by 1967, engineering (339; 341). Female employment in industry was concentrated in textiles and clothing (X, XII) and, to a lesser degree, in paper and board (481) throughout the entire period, linoleum and leather cloth (492) in the earlier stages, and engineering (351) and electrical goods (363; 364) by 1967. The male-female ratios confirmed these industries in textiles and clothing and in engineering and electrical goods as female-employing activities.

The changes in industrial employment in the male and female sectors between 1959 and 1967 indicated the structural weakness in the former. The insured male population in industry declined by 27.3% as a result of overdependence on contracting industries, notably coalmining (-49.2%) and linoleum and leather cloth manufacturing (-47.1%). (Table 3.04). Growth in the other industrial groups failed to compensate for this decline. By comparison, the insured female population in industry expanded by 30.7% mainly from jobs created by the location of electrical establishments in the county and by growth in textiles and clothing. (Table 3.04). The commitment of female labour to declining industries was much smaller than that of males (Table 3.02); the contraction in these industries was similarly less and was more than offset by the growth in the other sectors of industry.

The assessment of the male industrial structure in 1967

was that, while it was stronger than in 1959 due to the introduction of engineering industries and the fact that contraction in coalmining and linoleum would level off, its strength depended on several variables. The decline in coalmining had to be controlled; the future of shipbuilding and marine engineering was open to question; the paper and board and linoleum and leather cloth industries would be under severe competition and their future status would depend on their ability to meet this competition; the attraction of new growth-type, male-employing industries had to continue and be accelerated to compensate for possible contraction in the other industries comprising the economic base.

In female employment in industry the structure in 1967 was very much stronger than in 1959. The expansion in engineering and more so, in electrical goods increased female employment during the period and diversified and strengthened the female industrial structure. The diversification in the textile and clothing sector was welcome since it reduced the emphasis on weaving which was under competition in the market. These new industries offered "more suitable" employment for females and the response was seen in rising activity rates in female employment.³⁰

Distribution of Industrial Employment: Fife: 1959-67.

It has been established that, at the county level, the industrial structure and trends in industrial employment were determined by a few industrial groups and industries (p. 3.10). The variation in the distribution of these industries and of the changes in them resulted in distinct regional differentiation in the geography of industrial employment within Fife. As a result of this

distribution, each sub-area had a different industrial structure in which the industry "mix" created variation in the growth potential of each. Further, the changes between 1959 and 1967 in the principal employing industries, particularly in coalmining and in engineering and electrical goods, differed appreciably in their distribution throughout the county. In the context of this thesis, each sub-area possessed a different "milieu" in their potential for growth in industrial employment.

Industrial employment in Fife in the 1959-67 period was concentrated in the industrial arc from Dunfermline to Leven. The distribution of the main employing industries was similarly concentrated (Tables 3.24, 3.25 and 3.26). However, changes in the various industries between 1959 and 1967 radically altered the pattern of distribution (Maps 3.02, 3.03 and 3.04). From a fairly even distribution throughout the industrial arc in 1959, the pattern in 1967 exhibited a growing concentration in Kirkcaldy-Glenrothes and, to a lesser degree, in Dunfermline-Inverkeithing. Leven and Cowdenbeath-Burntisland experienced marked contraction.

In 1959, the total insured population in industry in Fife was 57,082 of which 92.7% were employed in the industrial arc of the county. Industrial employment was distributed fairly evenly throughout the industrial arc with a slight emphasis on Kirkcaldy-Glenrothes (27.2%) and with Leven (18.6%) slightly lower in status than the other areas. (Table 3.24, col. 1). The spatial analysis of manufacturing industry in 1959 differed appreciably from that in total industrial employment. The secondary sector employed 30,268 with 87.0% in the industrial arc within which, however, the con-

centration in Kirkcaldy-Glenrothes (36.9%) and in Dunfermline-Inverkeithing (30.9%) contrasted with the dispersion of total industrial employment. (col. 2).

This contrast in distribution between total industrial employment and employment in manufacturing in 1959 was equally valid in terms of the pattern of changes in employment between 1959 and 1967. (Table 3.27). Industrial employment in Fife declined by 7,993 (col. 1) while the secondary sector expanded by 5,024 (col. 2). Distinct variation existed both in the spatial distribution of these changes within Fife and in the male and female sectors. In the total insured population in industry, marked contraction took place in Cowdenbeath-Burntisland (-9,164) and in Leven (-3,470) mainly as a result of changes in the male sector (col. 1). This contrasted with the expansion in Kirkcaldy-Glenrothes (+3,252) and in Dunfermline-Inverkeithing (+1,977), due mainly to growth in female employment in the former (+2,606) and male employment in the latter. (+1,596) (col. 1). In manufacturing industry every sub-area except North and East Fife³¹ expanded, with growth most pronounced in Kirkcaldy-Glenrothes (+3,971) and to a lesser degree in Dunfermline-Inverkeithing (+1,113). With the exception of Dunfermline-Inverkeithing growth was higher in the female sector. (col. 2).

The results of the variation in the distribution of changes in industrial employment are evident in comparing Tables 3.24 and 3.26. In total insured population in industry, the growing status of Kirkcaldy-Glenrothes and Dunfermline-Inverkeithing contrasted markedly with the rapid contraction in Cowdenbeath-Burntisland and in Leven (Table 3.24; col. 1 and Table 3.26; col. 1: Maps 3.02 and 3.04). In manufacturing employment, the most significant change

was the increasing concentration in Kirkcaldy-Glenrothes (col. 2). This area had emerged as the industrial growth-pole of Fife in this index.

The distinct regional variation which had evolved in the geography of industrial employment in Fife was the result of the variety in location of the main industrial groups in the economic base and of the spatial differences in the changes in these industries in the 1959-67 period.

Mining and quarrying, by far the largest industrial employer in Fife in 1959 (Table 3.01) was dispersed throughout the industrial arc but with a decided emphasis on Cowdenbeath (41.0%) and, to a lesser degree, Leven (26.9%).³² (Table 3.24, col. 3; Map 3.05). Trends in this industry were crucial to the changes in industrial employment in the county between 1959 and 1967. (p. 3.24). However, the distribution of the changes varied markedly throughout the county.³³ Although contraction was significant at the county level, employment in this industry expanded in Dunfermline-Inverkeithing (+846) (Table 3.27). The decline in Kirkcaldy-Glenrothes (-719) was moderate but was overwhelmingly high in Cowdenbeath (-9,597) and Leven (-3,576). In terms of male and female employment this industry was male employing (Table 3.22) and changes were highest in the male sector. Those in the female sector were similar in trends to male changes but of a much lower magnitude (Table 3.27, col. 3). By 1967, the mining and quarrying industry in Fife was centred in Dunfermline (35.2%) with Kirkcaldy-Glenrothes (26.4%) and Leven (26.4%) as secondary areas.³⁴ Cowdenbeath had declined to a minor role in this industry (Table 3.26, col. 3; Map 3.05) and

mainly as a result of this decline had become the problem area of the county.

Shipbuilding and marine engineering, employing 9.7% of the total insured population in industry in 1959 (Table 3.01) was concentrated in Dunfermline (77.3%) with a secondary centre in Burntisland (19.4%) (Table 3.24, col. 5; Map 3.06). This industry experienced only minor expansion between 1959 and 1967 but growth was limited to Dunfermline (+460) as employment at Burntisland declined (-213) (Table 3.27, col. 5; Map 3.06). An important male industry in Fife (Table 3.22) the principal changes were in the male sector. (Table 3.27, col. 5).

Other manufacturing industries also employed 9.7% of the industrial population of Fife in 1959 (Table 3.01)³⁵ most of whom were employed in Kirkcaldy (79.7%) and to a lesser degree in Cupar (16.0%) (Table 3.24, col. 8; Map 3.07). This industry was noted for its decline (-2,205) in the 1959-67 period (p. 3.11). Spatially, this contraction was highest in Kirkcaldy (-1,990) but it was also important at the local level in Cupar (-258) (Table 3.27, col. 8; Map 3.07). Basically a male-employing industry but with a significant female element, decline was greatest in the male sector (-1,701) (Table 3.27, col. 8).

Employment in textiles-clothing and footwear in 1959 was 9.0% of the total insured in industry (Table 3.01)³⁶. Its distribution was the most dispersed of the main industry groups in the county structure. Dunfermline-Inverkeithing (41.8%) and Kirkcaldy-Glenrothes (27.0%) were the major centres of production in Fife (Table 3.24, col. 6; Map 3.08). The changes in this industry between 1959 and 1967 were moderate. Each area expanded with the exception

of North and East Fife (-111) and growth was highest in Kirkcaldy-Glenrothes (+586) (Table 3.27, col. 6; Map 3.08). Although noted as a female industry (Table 3.05) the changes in Fife and in the various sub-areas tended to be similar in both sectors (Table 3.27, col. 8).

Paper, printing and publishing employed 7.4% of the county's industrial population in 1959 (Table 3.01)³⁷ and was concentrated in the Leven valley at Glenrothes (62.6%) with secondary locations in Inverkeithing (17.1%) and St. Andrews (16.6%) (Table 3.24, col. 7; Map 309). Changes in this industry group were moderate in the 1959-67 period and were largest in Kirkcaldy-Glenrothes (+387); expansion in Inverkeithing (+149) and St. Andrews (+24) was more modest. (Table 3.27, col. 7; Map 309). As in other manufacturing industries, paper, printing and publishing was essentially male employing but with a significant female element in its structure (Table 3.05). The emphasis in growth was in the male sector. (Table 3.27, col. 8).

Employment in engineering and electrical goods accounted for only 3.8% of the total insured in industry in 1959 (Table 3.01) but its rapid growth to 1967 led to its inclusion in the main industries in the industrial structure of the county (p. 3.07).³⁸ Its distribution in 1959 was dispersed throughout Fife with an emphasis on Leven (49.8%) and secondary centres in Kirkcaldy-Glenrothes (19.2%) and Dunfermline-Inverkeithing (16.1%) (Table 3.24, col. 4; Map 3.10). This was the principal growth sector in Fife in the 1959-67 period. Every sub-area expanded with Kirkcaldy-Glenrothes (+4,117) and, to a lesser degree, Dunfermline-Inverkeithing (+1,043)

the dominant growth centres (Table 3.27, col. 4; Map 3.10). As a result of the dominance of engineering in this sector, this industry group in 1959 was male employing but with the greater increase in female employment between 1959 and 1967 (Table 3.27, col. 4), employment was more evenly divided in 1967 (Table 3.22). In Kirkcaldy-Glenrothes the expansion in employment was higher in the female sector; the reverse was true of the other areas.³⁹ (Table 3.27, col. 4). Overall, the changes in this industry group between 1959 and 1967 radically altered its distribution in Fife. By 1967 it was concentrated in Kirkcaldy-Glenrothes (54.6%) with secondary centres in Leven (17.1%) and Dunfermline-Inverkeithing (16.8%). (Table 3.26, col. 4; Map 3.10).

The remaining industries in the industrial structure together employed 13.4% of the industrial population in 1959 in a dispersed pattern of distribution with an emphasis on Kirkcaldy-Glenrothes (29.5%) and Dunfermline-Inverkeithing (23.3%). (Table 3.24, col. 9; Map 3.11). The changes in these other manufacturing industries were minimal; with the exception of growth in Kirkcaldy-Glenrothes (+842), all the other areas contracted (Table 3.27, col. 9; Map 3.11). Basically male employing industries, the changes were mostly in the male sector (Table 3.27, col. 9). The sum total of the evolution of these industries was to increase the status of Kirkcaldy-Glenrothes in Fife. (Table 3.26, col. 9).

The above spatial analysis of industrial employment by industry group was usefully supplemented by an analysis by area. Such analysis indicated that the most significant aspects were the growth and crystallization of industrial concentration in Kirkcaldy-Glenrothes and the decline, both in absolute and relative terms, of

Cowdenbeath-Burntisland and Leven. The changes in Dunfermline-Inverkeithing were less radical, those in North and East Fife minimal, in the overall pattern. Kirkcaldy-Glenrothes had emerged as the geographical growth-pole of Fife by 1967.

The significance of the Kirkcaldy-Glenrothes area in Fife industry in 1959 is summarized statistically in Table 3.24. It was the largest employer in the insured in industry (27.2%) (col. 1) and, more so, in insured in manufacturing (36.9%) (col. 2); it contained the largest proportion of employment in other manufacturing industries (79.7%) (col. 8), in paper, printing and publishing (62.6%) (col. 7) and in the remaining industries in manufacturing (29.5%) (col. 9); it also held significant shares of the county totals in textiles-clothing (27.0%) (col. 6), engineering and electrical goods (19.2%) (col. 4) and mining and quarrying (16.2%) (col. 3).

This status as the industrial and manufacturing core of Fife was enhanced by the trends in industrial employment between 1959 and 1967. (Table 3.27). It was the principal growth area in Fife in this period. It experienced the largest gains in insured in industry (+3,252), (col. 1), in manufacturing industry (+3,971) (col. 2), in engineering and electrical goods (+4,117) (col. 4), in textiles and clothing (+586) (col. 6), in paper, printing and publishing (+387) (col. 7) and in the remaining manufacturing industries (+842) (col. 9).⁴⁰ This growth was partially offset by contraction in other manufacturing industries (-1,990) (col. 8) and in mining and quarrying (-719) (col. 3), particularly in the former. In mining and quarrying the decline in Kirkcaldy-Glenrothes was moderate relative to that at the county level. In terms of male

and female changes in employment, growth was higher in the female sector mainly as a result of greater expansion in engineering and electrical goods and lower decline in other manufacturing industries and in mining and quarrying. In both sectors, employment in industry and in manufacturing expanded during the period. (Table 3.27).

These changes in industrial employment increased the status of Kirkcaldy-Glenrothes as the main area of industrial location in Fife. Its domination in total insured industrial population (38.2%) (Table 3.26, col. 1), in manufacturing industry (42.9%) (col. 2), in paper, printing and publishing (64.5%) (col. 7) and in the remaining industries in manufacturing (40.7%) (col. 9) was much stronger in 1967; although employing a lower proportion of the county total in other manufacturing industries (72.7%) its share in 1967 remained by far the highest in Fife (col. 8); it had become the principal area for employment in engineering and electrical goods (54.6%) (col. 4); its share of employment in textiles and clothing (34.0%) (col. 6) and in mining and quarrying (26.4%) (col. 3) had risen. By 1967, Kirkcaldy-Glenrothes had emerged as the undisputed core area in Fife industry.

In marked contrast to Kirkcaldy-Glenrothes, Cowdenbeath-Burntisland declined to a minor, almost insignificant status in Fife industry. This area lacked the diversity and growth potential of Kirkcaldy-Glenrothes. In 1959 only in mining and quarrying (41.0%) was it the leading employer in the county (Table 3.24, col. 3); its role in this industry was responsible for its high status in total industrial employment (23.6%) (col. 1). The area was especially weak in manufacturing employment (8.1%) (col. 2) in

which only shipbuilding and marine engineering (19.4%) was of importance in the county setting (col. 5).

The changes in industrial employment between 1959 and 1967 were critical for Cowdenbeath-Burntisland. Despite a decline in shipbuilding and marine engineering (-213) (Table 3.27, col. 5), employment in the manufacturing sector expanded (+433) (col. 2) mainly as a result of growth in engineering and electrical goods (+609) (col. 4). However, the magnitude of contraction in mining and quarrying (-9,597) (col. 3) more than offset the gain in manufacturing and was responsible for the sizable reduction in total industrial employment (-9,164) (col. 1) in the area. The extent of this contraction, together with that in Leven, was the cause of the overall decline in industrial employment in Fife (col. 1). As a result of the emphasis in male labour in shipbuilding and marine engineering and in mining and quarrying (Table 3.04) the contraction was in male employment (Table 3.27, col. 1), noting that the loss in shipbuilding and marine engineering (-201) was offset by expansion in engineering and electrical goods (+320) to give an overall increase in the manufacturing sector (+119). Employment for females expanded both in total industry (+89) (col. 1) and in manufacturing industry (+314) (col. 2).

The impact of these changes on the industrial status of Cowdenbeath-Burntisland was pronounced by 1967. Only in shipbuilding and marine engineering (14.9%) was the area significant in the county setting (Table 3.26, col. 5). Its once dominant role in mining and quarrying had declined markedly to one of minor importance (10.2%) (col. 3) and as a result of this, its status in Fife industry was

much lower than in 1959 (8.7%) (col. 1). The continued decline in these industries and the relative failure to attract new employment indicated the critical nature of the problem facing this area.

The situation in Leven during this period tended to mirror that in Cowdenbeath-Burntisland but on a smaller scale. In 1959, its contribution to the county's total industrial population was the smallest of any area in the industrial arc (18.6%) (Table 3.24), col. 1), its share of manufacturing employment (11.2%) even lower (col. 2) and only in engineering and electrical goods (49.6%) (col. 4) and in mining and quarrying (26.9%) (col. 3) was it significant in the county setting.

The trends in industrial employment in Leven were similar to those in Cowdenbeath-Burntisland. (Table 3.27). Employment in manufacturing expanded slightly (+106) (col. 2) with growth in engineering and electrical goods (+332) (col. 4) but, as a result of contraction in mining and quarrying (-3,576) (col. 3), the total insured in industry declined (-3,470) (col. 1). In manufacturing, both male and female employment increased marginally (col. 2) and in total industry, contraction in male employment (-3,463) was substantial (col. 1).

The results of these changes are shown in Table 3.26. Employment in industry (14.5%) (col. 1) and in manufacturing (9.9%) (col. 2) had declined in status in the county setting. Despite absolute contraction in mining and quarrying, Leven retained its share of this industry in Fife (26.4%) (col. 3). Its status in engineering and electrical goods (17.1%) was much lower than in 1959 (col. 4), mainly as a result of slow growth in this industry

in Leven relative to the rapid expansion at the county level.

Leven was the second problem area in Fife.

Dunfermline-Inverkeithing was the remaining area in the industrial arc of Fife. It was significant in the county as an employer in industry and in industrial growth in the 1959-67 period. However in growth and in status in 1967 it was secondary to Kirkcaldy-Glenrothes in Fife. In 1959 this area employed a significant proportion of the county's industrial population (23.4%) (Table 3.24, col. 1) and more so employment in its manufacturing sector (30.9%) (col. 2). It was the principal area in the county in shipbuilding and marine engineering (77.3%) (col. 5) and in textiles and clothing (77.3%) (col. 6) and second to Kirkcaldy-Glenrothes as the leading employer in the remaining manufacturing industries (23.3%) (col. 9). It also contained a reasonable share of the paper, printing and publishing (17.1%) (col. 7), the engineering and electrical goods (16.1%) (col. 4) and mining and quarrying (14.9%) (col. 3) industries. Only in other manufacturing industries (1.6%) (col. 8) was it of minimal importance in the county setting.

With the exception of the remaining manufacturing industries (-676) (Table 3.27, col. 9),⁴¹ every industrial grouping in Dunfermline-Inverkeithing expanded between 1959 and 1967. It was the only area in Fife to increase employment in mining and quarrying (+864) (col. 3). Growth in manufacturing (+1,113) (col. 2) was mainly the result of expansion in engineering and electrical goods (+1,043) (col. 4) and in shipbuilding and marine engineering (+460) (col. 5). In the industry groups which experienced the largest changes, the pattern of change in the male and female sectors was

similar to that of total change. (Table 3.27). Changes were higher in male employment than in female employment.

The effects of these changes on the status of Dunfermline-Inverkeithing in Fife industry is shown in Table 3.26. The area increased its share of total insured in industry (31.2%) (col. 1) but, as a result of slower growth relative to Kirkcaldy-Glenrothes its proportion in manufacturing declined slightly (29.7%) (col. 2). During the 1959-67 period, Dunfermline-Inverkeithing had become the largest employer in mining and quarrying (35.2%) (col. 3) and had consolidated its position as the principal area in shipbuilding and marine engineering (82.1%) (col. 5). It also remained as the centre of the textiles-clothing industry in Fife but with a reduced share of the county total in this industry group (38.2%) (col. 6) despite absolute growth in employment between 1959 and 1967. The higher rate of growth in Kirkcaldy-Glenrothes was responsible for this situation. Of the other industry groups, the remaining manufacturing industries (16.1%) declined in status (col. 9); paper, printing and publishing (18.6%) (col. 7), other manufacturing industries (4.5%) (col. 8) and engineering and electrical goods (16.8%) (col. 4) expanded. Overall, Dunfermline-Inverkeithing, while experiencing absolute growth in almost every industrial group used in this analysis, was over-shadowed by Kirkcaldy-Glenrothes in the Fife setting. However, by 1967 it was the second concentration of industrial employment in the county.

The remaining area of the county consisting of Cupar, Anstruther and St. Andrews-Tayport was of minor importance in Fife industry. In 1959, although represented in all industry groups in

the county, in none was it of major significance (Table 3.24). Changes between 1959 and 1967 indicated decline in total insured in industry (-588), and in manufacturing (-599) (Table 3.27, cols. 1 and 2 respectively). The decline in other manufacturing industries (-258) (col. 8) and the remaining manufacturing industries (-249) (col. 9) was responsible for this overall contraction. The male sector contracted more than the female. Overall these changes had no significant effects on the status of this area in industry in the county.

In summary, the analysis of the distribution of industrial employment in Fife revealed several factors significant in the evaluation of Central Fife as a growth area. Firstly, throughout the entire 1959-67 period industrial employment in the county was concentrated in the industrial arc from Dunfermline to Leven. In 1959 the pattern of distribution was fairly even throughout the industrial arc but, as a result of changes in industry, by 1967 it indicated a growing emphasis on Kirkcaldy-Glenrothes and Dunfermline-Inverkeithing, particularly on the former area. This pattern of increasing concentration in these areas was accentuated by the decline in industrial employment in Cowdenbeath-Burntisland and Leven.

Secondly, the emerging pattern of concentration within the industrial arc emanated from variations in the distribution of changes in the principal employing industries in the traditional sector of Fife industry, notably in mining and quarrying, and in the distribution of new industries, particularly those in engineering and electrical goods, introduced into the county from 1959. In

the traditional sector of industry the magnitude of decline in mining and quarrying was critical and was especially crucial in the decline in the status of Cowdenbeath-Burntisland and Leven as industrial employers. In contrast, this industry expanded in Dunfermline-Inverkeithing while the decline in Kirkcaldy-Glenrothes was moderate and relatively inconsequential compared with that in the areas abutting it. Employment from new industries in the county, although not sufficient to compensate for the decline in the older industrial sector, also favoured Kirkcaldy-Glenrothes and, to a lesser degree, Dunfermline-Inverkeithing. The introduction of engineering and electrical establishments, most of which located in the new town at Glenrothes, was notable in this trend.

Thirdly, the above trends in the distribution of industrial employment in Fife clearly indicated the initial stages of the formation of a geographical growth-pole in Kirkcaldy-Glenrothes. The expansion of industrial employment and, more so, employment in the manufacturing sector in this area stood out as the most important change in the pattern of industry in the county. In this, the attraction of the area for new industries constituted a vital element enabling it to absorb the contraction in mining and quarrying and in other manufacturing industries. Moreover, the growing significance of employment in engineering and electrical goods industries, together with the apparent stability in the other main industry groups in its structure, indicated that the Kirkcaldy-Glenrothes area was conducive to further expansion in industrial employment. The newer industries had diversified and strengthened the industrial structure of the area.

Evaluation of the Industrial Structures of Individual Areas.

The evaluation of Fife's industrial structure in 1959 indicated weakness as a result of its overdependence on industries which contracted between 1959 and 1967 (p. 3.24). However, variation in the distribution of the industries in the county structure and of the changes in them in the period of analysis created distinct regional differentiation in the structure and growth potential of each sub-area. Each sub-area possessed a different "milieu" in its potential for growth in industrial employment (p. 3.30).

At the county level the overall decline in industrial employment was due to the magnitude of contraction in declining industries, notably in mining and quarrying and in other manufacturing industries, the growth in the expanding industries, mainly in engineering and electrical goods, failing to offset the decline in the contracting sectors (p. 3.24). Analysis at the level of the sub-areas indicated that the trends in these same industries were effective in the overall trends in industrial employment but varied from area to area. As a result of this variation in the industry "mix" in each area and of the divergence in changes and degree of change, Kirkcaldy-Glenrothes and Dunfermline-Inverkeithing expanded in industrial employment during the period while Cowdenbeath-Burntisland and Leven declined markedly.

In 1959, the industrial structure of Kirkcaldy-Glenrothes was based on other manufacturing industries and mining and quarrying with subsidiary paper, printing and publishing and textiles (Table 3.28; Map 3.02). Taken together, the remaining industries in manufacturing were also significant with food, drink and tobacco

the largest employer in this group. (Table 3.28).

The analysis of this structure did not indicate the expansion which materialized in the 1959-67 period; it was too dependent on industries that declined or expanded slowly to be conducive to growth (Table 3.28). The growth in industrial employment in this area resulted from the location of new industrial establishments, (mainly in engineering and electrical goods and to a lesser degree in clothing and in metal goods not elsewhere specified), aided by the relatively moderate decline in mining and quarrying in this area.⁴² (p. 336)..

As a result of these changes, the structure in 1967 was not only more diversified but stronger and more conducive to growth.⁴³ (Map 3.04). Employment in the declining sector was only 32.4% in 1967 compared with 56.6% in 1959 (Table 3.28). Moreover, indications existed that the trends in the industries comprising this sector (other manufacturing industries and mining and quarrying) would be favourable. Mining and quarrying was already expanding (ref. 42) and the location of the new factory at Kirkcaldy to produce vinyl floorcoverings suggested that changes in employment in other manufacturing industries would be of a minor nature⁴⁴(p. 3.16). By 1967, the balance in industrial employment in the area had swung to the expanding industries which employed 67.6% of the insured industrial population compared with 43.4% in 1959. (Table 3.28). The most important aspect of this increasing involvement in expanding industries within an overall growth situation was the rapid rise in the status of engineering and electrical goods, which by 1967 was employing almost 1 in 4 of the total insured population in industry.

(Table 3.28). Expansion in the growth sector was expected to accelerate since the total employment from the establishment of new industries between 1959 and 1967 had not been fully realized by 1967 (p. 3.26; ref. 27) and since more new industries were expected to locate in the area. In this, the increasing attraction for further industrial location was obvious as a result of the general expansion of industry at the national level, the pull of the new town at Glenrothes, improved communications and the success of industries which had located in the area from 1959. Thus the trends and circumstances in both the declining and expanding sectors indicated a rapid acceleration of industrial growth in Kirkcaldy-Glenrothes.

The situation in Dunfermline-Inverkeithing was somewhat similar to that in Kirkcaldy-Glenrothes, differing only in detail and magnitude. In 1959, the industrial structure was dependent on shipbuilding and marine engineering and mining and quarrying with subsidiary textiles and clothing and paper, printing and publishing (Table 3.29; Map 3.02).

In terms of trends in these industries at the county, and more so at the national levels, this industrial structure did not indicate any growth potential. At the national level, only paper, printing and publishing expanded but at a slow rate (p. 3.16), with mining and quarrying, shipbuilding and marine engineering contracting rapidly and textiles and clothing declining at a slower rate (Tables 3.06 and 3.07). However, at the local area level, the trends in these industries contrasted with those at the scale of the larger area. Shipbuilding and marine engineering and textiles expanded slowly; this was the only area in Fife to increase employment in mining and quarrying; paper, printing and publishing

conformed to the national trend. These changes, together with the increase in employment from the location of new industries in engineering and electronics, were responsible for the overall growth in this area.

In 1967, the industrial structure of this area showed little change from 1959. It was slightly more specialized in industries which were expanding slowly at the local level.⁴⁵ The dependence on mining and quarrying and paper, printing and publishing was marginally higher, that in shipbuilding and marine engineering and textiles slightly lower, than in 1959. (Table 3.29). This specialization created potential problems for the area for, despite expansion between 1959 and 1967, the future of mining and quarrying (coalmining) was insecure (Chapter IV), that of textiles and paper, printing and publishing problematical⁴⁶(Chapter V), and that of shipbuilding and marine engineering dependent on government support of the naval dockyard at Rosyth (Chapter V). Only the growth and rise in status of engineering and electrical goods (Table 3.29) gave strength to the structure. This sector was expected to expand with the build up of new establishments in the industrial estates at Inverkeithing,⁴⁷ suitably located on road access to the Forth Road Bridge. Overall, given the continued stability of the principal industries in the structure and the expected growth in engineering and electrical goods, this area would expand but at a slower rate than Kirkcaldy-Glenrothes.

The industrial structures of Cowdenbeath-Burntisland and Leven in 1959 proved to be the weakest in the county. Both were highly specialized,⁴⁸ but more important, they were highly specialized in mining and quarrying, a rapidly declining industry. Moreover,

they failed to attract any new industries significant enough to affect their respective employment situations.

The importance of mining and quarrying in 1959 in the structure of Cowdenbeath-Burntisland is apparent in Table 3.30. Other than a minor involvement in shipbuilding and marine engineering and chemicals and allied industries,⁴⁹ this industry monopolized employment in the area. The magnitude of contraction in mining and quarrying indicated the weakness of this area's specialized structure, the limited increase in the engineering and electrical goods sector being sufficient to expand employment in manufacturing but insignificant compared with the decline in mining and quarrying. (Table 3.30). The situation in 1967 did not indicate any amelioration of the industrial contraction in the area. Mining and quarrying would decline still further (Chapter IV), the future of shipbuilding and marine engineering was insecure and, with competition from Kirkcaldy-Glenrothes and Dunfermline-Inverkeithing, it was unlikely that the area would attract any major-employing new industry.

In Leven, the structure in 1959 was dominated by mining and quarrying with subsidiary engineering and textiles and clothing.⁵⁰ (Table 3.31). Like Cowdenbeath-Burntisland, this specialization in mining and quarrying was the crucial factor in the overall contraction of industrial employment in the area, (Table 3.31), the slow growth in engineering and in textiles failing to compensate for this decline. The prospects in 1967 were not bright. Despite the rationalization of coalmining into a few units of potential, its future would depend on market demands (Chapter IV); the stability in engineering was likely to continue; a slight growth might be expected in clothing

manufacturing with the establishment of two new firms in the area in 1966 (Chapter VII). The need to attract further new industries was obvious but, like Cowdenbeath-Burntisland, Leven was at a disadvantage in competition with Kirkcaldy-Glenrothes. The emerging "polarization" of industry in the new town would create "backwash" effects on Leven.

The industrial structure of the remainder of Fife was the most diversified in the county,⁵¹ but this in itself did not generate growth in industrial employment. Throughout the entire 1959-67 period the industrial structure was broadly based but with an emphasis on other manufacturing industries, paper, printing and publishing, textiles and clothing and food, drink and tobacco (Table 3.32). The changes in the various industries between 1959 and 1967 were minimal but cumulatively effective in conditioning the general decline in industry in the area. (Table 3.32). The prospects for the post-1967 period did not suggest any change in trends and the "pull" of Glenrothes was too strong to give much hope of location of new establishments in this area. A continued decline was likely.

In overall summary, the analysis of the structures of the individual sub-areas in Fife indicated that their respective growth potentials varied considerably in both space and time. This was partly due to the differences in their respective structures as a result of the distribution of the various industries in the county. It was also partly the result of variation in the direction and magnitude of trends of the indigenous industries in each sub-area and of the ability of each to attract new establishments. In

other words, the distributions of the various industries at any point in time dictated the degree of specialization in the structure of each sub-area, while the trends in these industries in each sub-area dictated the strengths and/or weaknesses of this specialization.

It was notable that in 1959 none of the sub-areas in Fife possessed an industrial structure which was conducive to growth. All were specialized to varying degrees (Table 3.33) and, more significant, specialized in industries which were to decline or show only slow growth to 1967. This was especially true in Cowdenbeath-Burntisland and Leven where the undue emphasis on mining and quarrying and the substantial contraction in this industry created the rapid decline in industrial employment. However, despite apparent weaknesses in their structures, Kirkcaldy-Glenrothes and Dunfermline-Inverkeithing both expanded their employment in industry. The introduction of new industries was responsible for this growth, aided by a relatively moderate decline in mining and quarrying in the former and by the cumulative effects of slow growth in the principal industries, including mining and quarrying, in the latter. By contrast, Cowdenbeath-Burntisland and Leven failed to attract any new industries significant enough to affect their respective situations in industrial employment. The decline in the remainder of Fife was the result of the cumulative effects of contraction in the principal industries in the structure and the apparent inability to attract any new industry during the period.

By 1967 the industrial structure of every sub-area in Fife, with the exception of Dunfermline-Inverkeithing, was more diversified than in 1959. (Table 3.33). However, analysis of their

structures indicated that only Kirkcaldy-Glenrothes had the potential for significant expansion. Dunfermline-Inverkeithing was over-dependent on slow growth industries, some whose future prospects were questionable, and the other three sub-areas were still based on declining industries with little hope of attracting new industries to ameliorate this situation. The strength in the structure of Kirkcaldy-Glenrothes lay in its involvement in expanding industries, particularly in the engineering and electrical goods sector, in the expected decline in the rate of contraction in other manufacturing industries aided by the slow growth trend in mining and quarrying from 1964, and in the attraction of the new town in the location of additional new industries. This area had emerged as the undisputed geographical growth-pole of Fife.

The above analysis and evaluation of individual sub-areas was based on the 1959-67 period for several reasons (p. 3.05). Notably, this recognized the comparability of statistics from 1959 and the designation of parts of Fife as development districts from 1960. It also provided a reasonable time base to assess trends in industrial employment. However, in the context of this thesis, it was also necessary to consider the situation in these areas in 1963-64, which was the date of publication of the programme for development and growth.

Table 3.34 and Map 3.12 summarize the trends in industrial employment in each sub-area from 1959 to 1967. Analysis showed that only in Kirkcaldy-Glenrothes was there any significant change in these trends. This occurred in 1963-64. The overall contraction in Cowdenbeath-Burntisland, Leven and in North and East Fife was fairly constant throughout the entire period. Dunfermline-

Inverkeithing indicated slow growth from 1962. By contrast, the decline in Kirkcaldy-Glenrothes from 1959 was reversed in 1964 with the rapid increase in employment in engineering and electrical goods aided by the reversal of trends in mining and quarrying.

This reversal of trends in Kirkcaldy-Glenrothes resulted from the cumulative effects of several factors. Despite contraction in total industrial employment from 1959, the area possessed potential for growth. The manufacturing sector was expanding; the decline in mining and quarrying was reversing; the new town had shown its ability to attract new industries and industrialists who had located in the area were expressing satisfaction on its suitability for industrial development (p. 2.43). This potential was further enhanced by development district status in 1963 and by the completion, in 1964, of the Forth Road Bridge which markedly reduced the degree of the relative marginality of the entire county. Both substantially increased the attractions of the area for further industrial development, particularly in Glenrothes. (Chapter VII).

Evaluation of the Male and Female Industrial Structure of Individual Areas.

The analysis of the male and female sectors of industry in the sub-areas of Fife showed that, with the exception of Dunfermline-Inverkeithing, the degree of change in industrial employment between 1959 and 1967 favoured the female sectors. This was attributable partly to their lesser dependence on industries which declined but more so to the differences in the magnitude of contraction in these industries. The impact of employment from the location of industrial establishments on the male and female sectors

varied from area to area.

Neither the male nor the female industrial structures in Kirkcaldy-Glenrothes in 1959 were conducive to growth. Both, particularly the male structure, were dependent on industries which either declined or expanded slowly to 1967. (Table 3.35).

The weakness in the male structure of this area in 1959 lay in its specialization in other manufacturing industries and mining and quarrying, (col. 1), both of which, especially the former, declined significantly between 1959 and 1967 (col. 3). Substantial expansion in engineering and electrical goods and the cumulative growth in the other sectors in the structure offset this contraction to give an overall increase in male employment over the period.⁵² By 1967 the male structure was stronger and more conducive to growth. It was more dependent on expanding industries, the trends in the contracting industries were more favourable and the area was more attractive to further industrial development (pp. 3.45 - 3.46). These factors indicated continued growth in male employment in this area.

Although the female industrial structure of Kirkcaldy-Glenrothes in 1959 was weak due to its dependence on contracting and slow growth industries, the degree of weakness was much lower than in the male sector as a result of differences in the magnitude of change in the principal industries in each. (Table 3.35, cols. 3,7). In 1959, the female structure was specialized in other manufacturing industries and textiles, both of which contracted, and in paper, printing and publishing and food, drink and tobacco, which expanded slowly between 1959 and 1967. Only in other

manufacturing industries was the change significantly high. In addition, growth from the location of new industry, particularly in engineering and electrical goods but also in clothing manufacturing, was higher in the female sector (cols. 3 and 7). The overall result was that growth in female employment was substantially larger than in male employment. By 1967, the female industrial structure in this area indicated rapid expansion in employment. It was strong in expanding industries in engineering and electrical goods (col. 6); the trends in other manufacturing industries were more favourable; and female-employing industries were being attracted to the area. (pp. 3.45 - 3.46).

The assessment of the male industrial structure in Dunfermline-Inverkeithing depended on several variables. Throughout the entire 1959-67 period it was specialized in mining and quarrying and shipbuilding and marine engineering (Table 3.36), both of which expanded contrary to trends in the United Kingdom (p. 3.12). This expansion, together with growth in the engineering sector from the establishment of new industries, was responsible for the largest increase in male employment in any area in Fife between 1959 and 1967. The structure in 1967 differed little from that in 1959 except for the slight rise in status of engineering and electrical goods. Despite the expansion in male employment it was not conducive to substantial growth and its growth potential depended on additional location of male employing industries⁵³ and on the continued stability in mining and quarrying and shipbuilding and marine engineering (p. 3.47). Overall, the available evidence suggested that expansion in the male sector in this area would be of minor significance. By contrast, it was expected that female

employment in this area would expand with the introduction of new female employing industries especially in the engineering and electrical goods sector. The female industrial structure in 1959 was specialized in textiles and clothing with subsidiary shipbuilding and marine engineering and paper, printing and publishing (Table 3.36, col. 5). Trends in these industries between 1959 and 1967 indicated the structural weakness of the female sector since only in textiles was growth of importance.⁵⁴ (col. 7). The limited expansion experienced in the area was in engineering and electrical goods (col. 7) and the location of new industries was responsible for this growth. The evaluation of the female structure in 1967 was that, as a result of involvement in the engineering and electrical goods growth sector (col. 6), it was more conducive to growth. This sector would expand but overall growth would depend on the degree of stability of the textiles and clothing, paper, printing and publishing and shipbuilding and marine engineering industries. Indications were that the female sector would grow.

Analysis of the male industrial structure in Cowdenbeath-Burntisland indicated extreme weakness similar to that in total industrial employment in the area (p. 3.47). In 1959 it was grossly over-specialized in mining and quarrying with subsidiary shipbuilding and marine engineering (Table 3.37). Both contracted between 1959 and 1967, the magnitude of decline in the former being critical not only to this area but also to the entire county (p. 3.32). The relatively minor expansion from new industry in engineering was totally inadequate to compensate for the decline in these industries (col. 3). In 1967, despite the rapid con-

traction in the economic base, the male structure was still over-dependent on declining industries to initiate growth. The only hope for the future lay in the attraction of new industries, but with competition from Glenrothes and Dunfermline-Inverkeithing this was unlikely. The area simply did not possess the "milieu" for this attraction. Male employment would continue to contract.

Throughout the 1959-67 period Cowdenbeath-Burntisland was deficient in industrial employment for females. (Table 3.37). In 1959 the female structure was overspecialized in mining and quarrying with subsidiary textiles and clothing (col. 5). The decline in the former showed the weakness in the structure but this was offset by growth in engineering and electrical goods to give an overall increase in female industrial employment between 1959 and 1967. The situation in this sector in 1967 provided very little hope of expansion for the area was still deficient in female employment and the female structure, though diversified and strengthened by the introduction of new industry in engineering and electrical goods (col. 6), would not initiate growth. New industrial developments had to be introduced if expansion was to be realized in this area, but, as in male employment, the competition from Kirkcaldy-Glenrothes and Dunfermline-Inverkeithing appeared to be too strong for this area to combat. Little change could be expected in the female sector in this area.

Specialization in declining and slow growth industries proved to be weaknesses in both the male and female industrial structures in Leven but, as a result of differences in the magnitude of decline in the contracting industries, particularly in mining

and quarrying, the male structure was decidedly weaker than the female. Moreover, in this area no new industry significant enough to affect employment was introduced during the 1959-67 period.

The importance of mining and quarrying to the male structure in Leven in 1959 is obvious in Table 3.38 (col. 1). The result of the magnitude of its decline to 1967 is equally apparent (col. 3), with expansion in engineering and electrical goods failing to compensate for this contraction. The structure in 1967 indicated no potential for growth since it remained over-dependent on the same declining and slow growth industries. (col. 2). Mining and quarrying was more stable than in 1959 but its future depended on precarious market demand (p. 3.48) and competition from Glenrothes made it improbable that the area would attract new industry sizable enough to ameliorate this situation. It was this writer's opinion that the male employment base in this area would fluctuate between stability and further contraction depending on trends in mining and quarrying.

In 1959 the female industrial structure in Leven was specialized in textiles and clothing with subsidiary mining and quarrying and engineering and electrical goods. (col. 5). The changes in these industries between 1959 and 1967 were minor as was that in total female industrial employment (col. 7). In terms of growth potential, the structure in 1967 differed little from 1959 although some slight expansion could be expected from the location of the two new clothing firms in the area in 1966. (ref. 55). For growth to materialize new industries had to be introduced but again competition from Glenrothes rendered this unlikely.

The assessment of both the male and female industrial structures of North and East Fife was similar to that in total industrial employment in the area (p. 3.49). Both were more diversified than those in any other sub-area in the county yet both declined in employment between 1959 and 1967. In this, the contraction in the male sector was higher as a result of the magnitude of decline in industries in the structure (Table 3.39, cols. 3 and 7).

Throughout the entire period, the male industrial structure was broadly based but with an emphasis on other manufacturing industries, paper, printing and publishing, food, drink and tobacco and engineering and electrical goods (cols. 1 and 2). The overall decline in these industries together with that in vehicles was responsible for the contraction in male employment during the period. The situation in 1967 did not indicate any change in trends. The structure was still based on declining industries, no new industry had been attracted to the area and the pull of Glenrothes made it unlikely that any substantial employer would locate there in the near future. A continued decline of male industrial employment was likely.

The female industrial structure of this area was centred in textiles and clothing, other manufacturing industries, paper, printing and publishing and food, drink and tobacco. (cols. 5 and 6). The changes in these industries and others in the structure between 1959 and 1967, though minor, were cumulatively effective in the contraction of total female employment in industry (col. 7). For reasons similar to those in the male sector changes in female

employment would be minimal in the immediate post-1967 period. A continued slight decline was probable.

Summary of Conclusions.

This thesis is concerned with the geographical appraisal of Central Fife as a growth area. Any evaluation in this context implied an assessment of the two-way relationship between economic growth and the growth area process and the geographical "milieu" of the study area. As such it involved the evaluation of the "milieu" of Central Fife, its conduciveness to the emergence and development of a growth-pole, the degree to which it was modified to render it more favourable for growth and the effects of the growth process upon it. (p. 2.30). Employment in industry represented an important facet in such an assessment. (p. 3.01).

Employment in industry was used as the basic index to identify the strengths and weaknesses in the industrial structure of Fife in the 1959-67 period and to measure economic trends in the area (p. 3.01). The subsequent analysis by this criterion showed clearly that industry in Fife was in a period of transition in which the decline associated with the older industries, notably coalmining and to a lesser degree linoleum manufacturing, represented a critical problem which was being progressively overcome during the period by the introduction of newer establishments into the county. Although a substantial amount of new employment had been created, the balance in 1967 still lay with the problem, declining sector; the industrial base had declined during the period. (p. 3.08).

The critical element in the decline of the older industries

in Fife was not in contraction itself but in the magnitude of this contraction in the short period between 1959 and 1967. The total insured in industry decreased by 7,993 (-14.0%) mainly as a result of the decline in coalmining (-13,067: -49.5%) and in linoleum manufacturing (-2,505: -48.2%), the other main employing industries experiencing only minor changes over the period.⁵⁶ This decline in coalmining and linoleum manufacturing was crucial in the economic and social development of the entire county since not only were both these industries major employers in 1959, particularly for male employment, but coalmining had been identified as the potential economic growth point in Fife industry for the 1960's. (Chapter IV). As such, the magnitude of decline in the coal industry cannot be understressed in its impact on the county. In addition, while the other industries in the older sector of Fife industry had experienced only minor changes in employment between 1959 and 1967, several of them were encountering problems which, if left unsolved, would jeopardize their future status in the industrial structure of the county (pp. 3.13-3.23).

Against this background of substantial decline in the traditional sector of industry, the introduction of the newer industries from 1958⁸ was vital, firstly to avoid excessive social distress by providing employment and secondly, and more important in the long-term development of the area, to lay the foundations of a stronger, more diversified economic base conducive to further growth and development. In this, the growth in employment in engineering and electrical goods (+6,126; +279.6%) was most important not only as a source of employment for both males and

females but also as a potential growth-pole for future expansion. The new establishments in textiles and clothing were relevant only in the context of providing employment. Overall, while the employment from the introduction of new establishments had not compensated for the decline in the older industries by 1967, the new industries had strengthened the economic base of the county and made it more favourable for further expansion.

The analysis of the industrial structure of Fife between 1959 and 1967 indicated that it was over-dependent on declining and slow growth industries to be conducive to growth, a situation which was particularly valid in 1959 and in the earlier stages of the period. (p. 3.24). This conclusion was equally relevant in the evaluation of the structures of the individual sub-areas within the county, but the degree of weakness in each varied mainly as a result of the degree of involvement in declining industries and the differences in the magnitude of contraction in them. Cowdenbeath-Burntisland and Leven proved especially vulnerable, the other areas less so, as a result of this regional variation. (p. 3.50). It was also valid in terms of the male and female structures both at the county level and at the level of the individual sub-areas, (pp. 3.52 - 3.59), but again variations existed in the degree of weakness by sector and in distribution. With the exception of Dunfermline-Inverkeithing, the male structures proved weaker than the female due to their greater dependence on declining industries (pp. 3.52- 3.59); spatially, this was especially relevant in Cowdenbeath-Burntisland and Leven (pp. 3.52 - 3.59).

The conclusion that the industrial structures in the

county as a whole and in the various sub-areas were not conducive to growth appeared paradoxical when the changes in industrial employment between 1959 and 1967 were considered. Growth in industrial employment was substantial in Kirkcaldy-Glenrothes and significant in Dunfermline-Inverkeithing (p. 3.50); in these areas both the male and female sectors expanded. In every other area, including Fife County, the total employed in industry contracted (p. 3.50) and in each case decline was most evident in the male sector. Fife County actually increased significantly in female employment (p. 3.28), Cowdenbeath-Burntisland marginally so (p. 3.38); by contrast, contraction in both sectors was relevant in Leven and North and East Fife. (ps. 3.39 and 3.42).

The underlying cause of this spatial variation in changes in industrial employment lay in the sum effects of the differing degrees of weakness in the respective structures and of the areal differences in the pattern and magnitude of the new industries introduced in the 1959-67 period. Since none of the industrial structures was conducive to growth, (p. 3.50), the role of new industries in the areas which expanded in industrial employment was of crucial significance. This was especially valid in Kirkcaldy-Glenrothes where the concentration of new industries was instrumental in its emergence as the geographical growth-pole of Central Fife. Equally valid, the failure to attract new industry was important in the areas which declined, particularly in Cowdenbeath-Burntisland and Leven (p. 3.50).

The relative weighting given to the effects of the location of new industries on changes in employment varied from area to area.

In Kirkcaldy-Glenrothes it was the principal reason for expansion in total industrial employment (p. 3.45) and in both the male and female sectors. (pp. 3.53- 3.54). Growth was much higher in female employment as a result of greater attraction of female-employing industries and the lower degree of weakness in the female industrial structure (p. 3.54), but in the male sector it merely helped prevent a decline in employment due to structural weakness. (p. 3.53).

In Dunfermline-Inverkeithing, the location of new industries was significant in employment changes, but only in the female sector was it more important than the effects of the cumulative slow growth in existing industries in the structure (p. 3.50 and pp. 3.54 - 3.55). In Cowdenbeath-Burntisland and Leven, employment from new establishments was limited and totally inadequate to offset the magnitude of contraction in total and male industrial employment (p. 3.50; pp. 3.55 - 3.57), but in the female sector it was sufficient to give minor growth in Cowdenbeath-Burntisland (p. 3.56) and to stabilize employment in Leven (p. 3.57). In North and East Fife, the failure to attract industry was partly responsible for the decline in all sectors, the higher degree of structural weakness in the male sector causing the larger decline in male employment. (p. 3.58). The total effects of these changes in the various sectors in each sub-area conditioned the trends in industrial employment in the county. At this level, employment from new industry was significant in the expansion of the female sector (p. 3.28); in total and male industrial employment it was effective in reducing the degree of decline due to the structural weaknesses from over-dependence on declining and slow growth

industries. (ps. 3.25 and 3.28).

Overall, the analyses of the structures of the different sub-areas made it blatantly obvious that for growth of any significance, each area was dependent on the introduction of new industries into the industrial structure. Such was the degree of weakness in the industry "mixes" that, without new industry to modify the employment "milieu", employment in industry in the various areas would have registered on a scale between stagnation and marked contraction. These conclusions in the Fife case study verified two fundamental assertions of the Scottish Council and the Scottish Development Department, namely that the basic cause of slow growth in Fife did lie in the over-dependence of its industrial structure on declining and slow growth industries and that for growth to materialize, the industrial base had to be diversified and strengthened by the introduction of new industrial development from outwith the area (p. 2.15). Most of the employment introduced into the area was from branch factories of concerns based in England and the United States (Chapter VII). The location of these new industrial establishments helped modify the industrial employment "milieu" and was effective in diversifying and strengthening the structures of several areas throughout Fife.

Accepting that the changes in industrial employment, particularly those associated with the introduction of new industry, had modified the employment "milieu" in various areas of the county, only in Kirkcaldy-Glenrothes were they of sufficient force to significantly alter the structural weakness of these areas.⁵⁷ Although these changes had diversified the structures of the

various sub-areas by 1967,⁵⁸ the analyses of these structures indicated that only Kirkcaldy-Glenrothes had the potential for further significant expansion (p. 3.51). This conclusion was equally valid in both male and female industry, although the growth potential in Kirkcaldy-Glenrothes was greater in the female sector (p. 3.54).

In the context of the growth area concept, the "polarization" of industrial activity around Kirkcaldy-Glenrothes was extremely important. By 1967 this area had emerged as the geographical growth-pole of Fife industry. Several indices verified this conclusion. In 1967 it was the principal area in industry in Fife, dominating industrial employment and, more so, manufacturing employment, in the county (p. 3.37). This was relevant in total employment in industry and in both the male and female sectors with the exception of males in all industry (II-XVI) in which it was marginally second to Dunfermline-Inverkeithing. In terms of absolute growth in employment between 1959 and 1967, the situation was identical to that in status. Only in male employment in all industry was growth in this area secondary, again to Dunfermline-Inverkeithing (p. 3.52); in all other sectors, particularly in manufacturing, growth in Kirkcaldy-Glenrothes was the highest in the county (p. 3.36). The conduciveness of the industrial structures in this area in 1967 for further growth was the third important index in the polarization of industrial employment in Fife; this had been recognizable by 1963-64 (p. 2.42) and was considerably stronger by 1967 (p. 3.51). These were the indices which signified that polarization was taking place in Fife. Such trends were in accord with the growth area concept which was "essentially

the recognition of observable economic trends which have their geographical expression in the areal concentration of economic activity" (p. 2.01).

Accepting that the areal concentration of economic activity in the polarization process is a consequence of growth either in existing industries or by the creation of new industries (p. 2.05), it was obvious from the analysis of industry in Fife that the latter was the relevant motivating force, (p. 3.62), especially in Kirkcaldy-Glenrothes. Only the location of new industry prevented decline in the industrial sector (p. 3.50). In this context, the attraction of industries in engineering and electrical goods was of major significance. This sector formed the basis of the emerging economic growth-pole in the region,⁵⁹ and further, it provided evidence that the first stage of the growth process, that of the emergence of the growth-pole, had been reached by 1967 (p. 2.09).

".....only the emergence of one or several growth-poles can have a lasting effect and transfer regional decline into expansion."

The appearance of the Kirkcaldy-Glenrothes growth point implied that its geographical "milieu" was propitious to growth (p. 2.10). In the context of this case study, this implied that the "milieu" of the area was conducive to the attraction of the new industries essential to initiate the growth area process. Several indices showed that the industrial arc of Fife in general, and Kirkcaldy-Glenrothes in particular, possessed such a "milieu". Improvements in transport and communication through time had greatly reduced the marginality of the area as a location for new industry; in this, the timing of the construction of the Forth Road Bridge was a key factor which increased the "pulls" of the other assets

of the area. (pp. 2.37 - 2.38). The availability of space, situated in an attractive physical setting, and of a labour force with a degree of quality in terms of industrial background and suitable attitudes, contrasted with the shortages in both space and labour in the main zone of polarization in the United Kingdom (pp. 2.38 - 2.39). These assets were resources to be developed and in time proved to be significant in the attraction of new industry to the area (Chapter VII). These advantages of available space and labour attained their optimum in the new town of Glenrothes which became increasingly successful in attracting new industry to Fife, especially from 1963 when Kirkcaldy-Glenrothes received development district status and became the centre of the channeled investment outlined in the programme for development and growth. (p. 2.26). Finally, in time, the success of industries which had located in Central Fife at the beginning of the 1959-67 period and the growing awareness of advantages in establishing new capacity there helped break down the psychological aversion of industrialists to locate in the area. (p. 2.39). These factors and their inter-relationships indicated the potential inherent in the "milieu" of Central Fife.

Despite this apparent potential in the "milieu" of the area, the emergence of the growth-pole in Kirkcaldy-Glenrothes was not spontaneous but had to be induced by human action (p. 2.09). The analysis of the factors influencing the location of new industries in Fife revealed a range of human action involved in the decision-making process of each establishment (Chapter VII). A general climate of business expansion at home and overseas proved

fundamental in motivating a search for production space in the United Kingdom; as a result of problems of congestion in space and in labour in the main zone of polarization and of government policies, both negative and positive, this search for space was directed towards the designated development districts. Thus in the context of this thesis, "human action" at the national level in the designation of parts of Fife as development districts in 1960, and especially in 1963,⁶⁰ was essential in bringing the area into the focus of the private entrepreneur as a prospective location of new industries; (p. 2.09). At this stage of the decision process, the effects of "human action" at the local level attained significance. Industrialists who had located in Fife emphasized the aid and advice given by the Scottish Council (Development and Industry) in making their final decision; they commended Glenrothes Development Corporation, Fife County Council and, to a lesser degree, Kirkcaldy Burgh and Dunfermline Burgh, for their rapid follow up of initial inquiries for sites and for helpful assistance in minor problems encountered in the initial stages of location.⁶¹ Further, the initiative shown by Fife County Council in publicizing the advantages of the area for new industrial development in displays in London, in setting up their own industrial estates independent of the Board of Trade (Chapter VII) and in carrying out pilot projects in the clearance of derelict land as a forerunner to large scale developments in this field (Chapter VI), was important in the competition with other development districts, for new industry. Although difficult to impossible to quantify the individual impact of these "human actions", together they were effective in helping

to attract new industry; they modified the climate or "milieu" of the area to render it more conducive to the location of the new establishments essential for growth.

The assessment of Central Fife as a growth-pole in terms of industrial employment also required an evaluation of the effects of polarization in this index. One obvious effect was the changing pattern of industrial employment, in which the expansion in Kirkcaldy-Glenrothes contrasted markedly with the decline in the areas abutting it. (p. 3.44). Further, the expanding industrial capacity in the growth pole had "backwash" effects on the areas peripheral to it. Table 3.40 clearly indicates this in terms of daily travel-to-work into Kirkcaldy-Glenrothes, which was pulling labour to it from the surrounding districts.⁶² This index accorded with the polarization process which "affects not only the areas of growth but also those peripheral to them; it initiates both centripetal and centrifugal forces, the former detrimental and the latter advantageous to the marginal areas; regional inequalities in growth in any economy are a function of the balance between these forces; in practice, this balance favours the growth zones, at least in the initial stages". (pp. 2.06 - 2.07). In 1967, Fife was in the early stages of polarization; the centripetal forces greatly exceeding the centrifugal which were negligible in the overall pattern. Indications existed that this process of increasing concentration would continue in the immediate post-1967 period; the pulls of the emerging growth-pole rendering it difficult for the peripheral regions to attract new industries. (pp. 3.56 - 3.58).

REFERENCES and FOOTNOTES.

¹Footnote. References on this subject are too numerous to list here but as a cross-section see those noted in Chapter II. For government legislation and reports see references 45-48 and 51 (Chapter II). See also Scottish Council (Development and Industry), (1952), op. cit. and (1962), op. cit.; Self, P., (1964), op. cit.; Wilson, T., (1964), op. cit.; Cameron, G.C. and Reid, G.L., (1966), op. cit. See also

Sykes, J., (1959), Employment and Unemployment in Regions and in the Development Areas. Scottish Journal of Political Economy, vol. 6, 3, pp. 193-210.

Hunter, L.C., (1963), Employment and Unemployment in Great Britain; Some Regional Considerations. Manchester School of Social and Economic Studies, vol. 31, 1, pp. 21-38.

Needleman, L. and Scott, B., (1964), Regional Problems and the Location of Industry Policy in Britain. Urban Studies, vol. 1, 2, pp. 153-173.

Holmans, A.E., (1964), Industrial Development Certificates and Control of Growth in Employment in South-East England. Urban Studies, vol. 1, 2, pp. 138-152.

²Footnote. This availability, comparability and suitability of employment statistics led to their use in this study.

³Scottish Council (Development and Industry), (1952), op. cit., para. 74.

⁴Scottish Council (Development and Industry), (1962), op. cit., para. 02.04.

⁵Ibid., para. 23.41.

⁶e.g. See Ainsworth, R.B., (1950), United Kingdom Labour Statistics, Journal of the Royal Statistical Society, Series A, vol. 113, pp. 37-49.

Turner, H.A., (1955), Measuring Unemployment, Journal of the Royal Statistical Society, vol. 118, pp. 28-50.

Jackson, J.N., (1959), Location of Industry; Unemployment as a Basis for National Policy. Town Planning Review, vol. 30, 3, pp. 239-248.

Bailey, D., (1960), Note on British Unemployment Statistics, Applied Statistics, vol. 9, pp. 51-59.

⁷Footnote. This criticism was valid in Fife where industrialists maintained that unemployment statistics did not represent a true reflection of available labour. Some of the registered unemployed were unemployable while some females accepted employment for a short period merely to accumulate sufficient credits to qualify for unemployment benefits. (Chapter VI).

⁸e.g. See Humphrys, G., (1963), Growth Industries and the Regional Economies of Britain. District Bank Review, 145, pp. 35-56.

⁹Footnote. These statistics were available to minimum list headings of the Standard Industrial Classification (1958) and were comparable over the 1959-67 period.

¹⁰Humphreys, G., (1963), op. cit., pp. 37-41.

¹¹Footnote. e.g. This was shown by Davies and Hagger in the metal industries in a study of industrial employment in South Wales. (Davies, H.W.E. and Hagger, D.F., (1964), Aspects of the Geography of Employment in Manners, G., (ed.), South Wales in the Sixties; Studies in Industrial Geography. Pergamon Press, Oxford, p. 132.

¹²e.g. See McCarty, H.H., (1942), A Functional Analysis of Population Distribution. Geographical Review, vol. 32, pp. 282-293.

Sykes, J., (1959), op. cit., p. 198.

Humphrys, G., (1963), op. cit., p. 35.

Davies, H.W.E. and Hagger, D.F., (1964), op. cit., p. 140.

Wilson, T., (1964), op. cit., p. 33.

Footnote. Note that both Sykes and Wilson indicate that service industries can serve as the basis for economic growth but in Fife no service industry existed as such in the 1959-67 period.

¹³Milbau, J., (1956), op. cit., p. 349.

¹⁴Footnote. The decline in these industry groups was determined by the contraction of coalmining and linoleum and leather cloth respectively. (Table 3.05).

¹⁵Footnote. It was held that physical site constriction prevented this shipyard expanding into the construction of larger vessels, a trend which prevailed at the national and international levels in shipbuilding and that this trend towards larger vessels reduced competition in the market for small - to medium - size ships which could be accommodated at Burntisland. (Chapter V). (Interview: Burntisland Shipbuilding Co. Ltd., Burntisland, 1966.)

¹⁶Footnote. Coalmining and, to a lesser degree linoleum and leather cloth manufacturing were exceptions to this statement. Production data in coalmining were available for Fife while the high degree of localization of the Scottish linoleum industry in Fife enabled the trends in Scottish production to be acceptable for those in the county.

¹⁷Footnote. Employment and production in this industry in Scotland was concentrated in Fife. Employment in the industry in Fife in 1959 was 88.9% of the Scottish total and in 1963 and 1967 the percentages were 98.6 and 86.9 respectively.

¹⁸Footnote. This represented a personal evaluation based on interviews of the firms concerned and from the analysis and appraisal of production statistics on linoleum, printed felt base and vinyl. (Chapter V).

¹⁹"Kirkcaldy Gets 700 Jobs in Switch to Vinyl", The Financial Scotsman, Edition of February 1, 1967, Edinburgh, p. 15.

²⁰Interviews of Industrialists; Fife; 1966-67.

²¹Ibid.

²²Ibid.

²³Ibid.

²⁴Footnote. The trends in dresses, lingerie and infants' wear were accepted as showing growth despite the decline in sales in the 1966-67 period. This decline was the result of an "economic squeeze" which was expected to be only temporary. (Interviews of Manufacturers in Dresses, Lingerie and Infants' Wear; Fife; 1967).

²⁵Footnote. The clothing sector was well represented in the types of new establishments which had located in the area in the 1959-67 period. (Chapter VII).

²⁶Footnote. These indices of diversification were calculated by the method used by Conkling, E.C., (1964), The Measurement of Diversification in Manners, G., (ed.), (1964), op. cit., pp. 166-167.

²⁷Footnote. The statistics in Table 3.21 grossly underestimate the ultimate effects of employment derived from the location of new establishments in Fife. The estimated additional employment from projects granted industrial development certificates in Fife from 1960 to March 1966 was 18,193. (Information from Board of Trade, Glasgow). Interviews of new establishments together with information from H. M. Factory Inspectorate records and Fife County Council Planning Department indicated that employment in these firms was approximately 6,800 in 1967. Even allowing for the over-estimation of expected additional employment in the applications for industrial development certificates a substantial number of new jobs had still to be realized.

²⁸Footnote. By 1967, production in coalmining was concentrated in large, modern, highly capitalized units. Productivity was rising and the industry's future employment capacity was dependent on market conditions. (Chapter IV.)

²⁹Footnote. The announcement of the construction of a new factory in Kirkcaldy to produce vinyls justified this assessment. (ref. 19).

³⁰Footnote. Female activity rates in Fife in 1961 and in 1966 were 27.9 and 32.0 respectively.

³¹Footnote. North and East Fife refers to the combination of the Ministry of Labour exchange areas of Anstruther, Cupar and St. Andrews-Tayport.

³²Footnote. This industrial order was dominated by coal-mining.

³³Footnote. This was the result of the varying potential of coalmining in these areas. (Chapter IV).

³⁴Footnote. Note, however, that collieries in Kirkcaldy and Leven worked the same coalfield and together employed over half of the insured population in this industry (Chapter IV).

³⁵Footnote. Employment in this industrial order was dominated by linoleum and leather cloth manufacturing.

³⁶Footnote. In 1959, the textiles-clothing and footwear industry group consisted of a variety of industries each with a different location pattern. Spinning was predominantly in Leven and Kirkcaldy, weaving in Dunfermline and Kirkcaldy, hosiery and other knitted goods in Cupar, Anstruther and Leven, carpets in Kirkcaldy and clothing in Dunfermline, Leven, Cupar and Tayport.

³⁷Footnote. The manufacture of paper and board was the principal employer in this order.

³⁸Footnote. In 1959, industrial plant and steelwork located in Leven and ordnance and small arms with other mechanical engineering centred in Dunfermline, Leven and Cupar were the principal industries in this group. However by 1967 this industry group had altered radically with the introduction of new establishments into the county. Other machinery, centred mainly in Kirkcaldy-Glenrothes and in Dunfermline-Inverkeithing had become the largest employer in engineering. Telegraph and telephone apparatus and radio and other electronic apparatus together formed the electrical sector which by 1967 was larger than engineering. The electrical sector was concentrated in Kirkcaldy-Glenrothes with secondary centres in Dunfermline-Inverkeithing and Cowdenbeath. (Chapter V).

³⁹Footnote. This was the result of the location of female-employing electrical industries (Chapter VII).

⁴⁰Footnote. In these changes the magnitude of increase in engineering and electrical goods was most significant. This sector was responsible for the overall expansion in industrial and manufacturing employment. Note also that the increase in the remaining industries in manufacturing contrasted with the decline in this group in every other area in the county.

⁴¹Footnote. The contraction in the remaining manufacturing industries was due mainly to the run-down in the vehicle repair industry which in Fife was concentrated in aircraft repairing at the Royal Navy base at Donibristle, Inverkeithing. The loss in employment between 1959 and 1967 was 303 of whom 259 were males.

⁴²Footnote. The overall decline in mining and quarrying between 1959 and 1967 clothed different trends within the period. Decline was fairly rapid to 1964 due mainly to the closure of Rothes Colliery and a cut-back in employment at Frances Colliery. The rising trend from 1964 coincided with the opening of the new Seafield Colliery at Kirkcaldy.

⁴³Footnote. The indices of diversification for 1959, 1963 and 1967, as calculated by the Conkling Method (ref. 26), were 37.9, 45.6 and 47.3 respectively.

⁴⁴Footnote. In this industrial group between 1959 and 1967, industries other than linoleum and leather cloth manufacturing actually expanded as a result of the location of new establishments; the entire group declined by -1990 (Table 3.28) compared with -2205 in linoleum and leather cloth.

⁴⁵Footnote. The indices of specialization for 1959, 1963 and 1967, as calculated by the Conkling Method (ref. 26) were 62.1, 68.7 and 66.3 respectively.

⁴⁶Footnote. The largest employer in textiles in this area was weaving which declined between 1959 and 1967. Growth in this industry was due to the location of a new establishment in hosiery and other knitted goods (Chapter V).

In paper, printing and publishing, production was specialized in papermaking which was under increasing competition in market (Chapter V).

⁴⁷Footnote. Several new industries in this sector had located in Inverkeithing in 1966-67 and were not yet in production at the time of survey. This area was becoming a second growth point in Fife.

⁴⁸Footnote. The indices of specialization for 1959, 1963 and 1967 as calculated by the Conkling Method (ref. 26) were:- Cowdenbeath-Burntisland 83.7, 79.4 and 60.0 respectively and for Leven 75.2, 72.4 and 63.8 respectively.

⁴⁹Footnote. Both these industries were located in Burntisland. Employment in the chemicals and allied industries sector was in a firm which processed bauxite for use in aluminium manufacturing.

⁵⁰Footnote. In Leven, engineering was based on industrial plant and steelwork in which the trends were similar to those in Scotland and in the United Kingdom.

⁵¹Footnote. The indices of diversification for 1959, 1963 and 1967 as calculated by the Conkling Method (ref. 26) were 51.8, 49.5 and 52.1 respectively.

⁵²Footnote. Employment from the location of new industries in the area was important in these trends. It was particularly effective in the engineering sector but also relevant in other metals not elsewhere specified.

⁵³Footnote. Several new industrial establishments in engineering and electrical goods had located in Inverkeithing during 1966 - mid 1967 but were not yet in production. (ref. 47). However, most were female-employing industries.

⁵⁴Footnote. Growth in female employment in textiles was the result of the establishment of new industry in hosiery and other knitted goods. Employment in weaving, the largest employer in this industry group, actually declined during the period (ref. 46).

⁵⁵Footnote. Two new clothing industries located in this area in 1966 but their employment capacity in 1967 was still below their ultimate potential. (Interviews of Industrialists: Fife 1966-67.)

⁵⁶Footnote. e.g. Employment in weaving declined by -356 and weatherproof outerwear by -296 between 1959 and 1967, while employment in shipbuilding and marine engineering increased by 236, industrial plant and steelwork by 449 and carpet manufacturing by 229.

⁵⁷Footnote. Note that the changes in this area were mainly responsible for the conclusion that the industrial structure of Fife was stronger and more conducive to growth (pp. 3.25 - 3.27).

⁵⁸Footnote. Dunfermline-Inverkeithing was an exception to this general statement. (p. 3.47).

⁵⁹Footnote. By 1967 the engineering and electrical goods sector was exerting an increasing influence on the industrial structures of Kirkcaldy-Glenrothes; in this year it employed 24.2% of the total insured in industry, 15.8% of the male insured in industry and 39.7% of the female insured in industry. The continuation of the rate of growth in this sector would result in its domination of the structure of the growth-pole (p. 2.02). Note, however, that by 1967 this growth had not yet created industrial linkages associated with the process. (Chapter V.)

⁶⁰Footnote. Note that the designation of Kirkcaldy-Glenrothes as a development district by the Local Employment Act (1963) and its role in the designated growth area in the programme for development and growth (1963) coincided with changing trends in industrial employment in this area (p. 3.67).

⁶¹Interviews of Industrialists: Fife: 1966-67.

⁶²Footnote. These statistics on increasing daily travel-to-work into Kirkcaldy-Glenrothes tended to underestimate the pull of the growing employment capacity on the surrounding areas since they do not include those permanently resident in the new town. Table 3.41 shows that almost one-quarter of the residents of Glenrothes in 1967-68 were drawn from the "marginal areas". This trend was in keeping with the growth area concept....."this concentration of economic activity is matched by social agglomeration in urban centres". (p. 2.05).

Chapter IV.

THE SIGNIFICANCE OF COALMINING

AND ITS DECLINE: 1947-67.

The significance of coalmining and its rapid decline from 1957 represented a crucial facet in the appraisal of Central Fife as a growth area. The development and trends in this industry from that date were important, both directly and indirectly, in the social and economic geography of the whole of Fife and were of particular significance in the industrial arc of the county. This was equally relevant in the past when the use of coal as a cheap source of fuel and power was in part responsible for the concentrations of industry and population which developed in the area from Dunfermline to Leven. (p. 2.40). From the mid-19th. century the coal industry greatly affected the geographical and economic "milieu" of Fife and, in the context of this thesis, was a major determining factor in the changes which occurred in the area in the 1957-67 period.

The pattern of coalmining in Fife helped explain other important geographical distributions in the county.¹ The physical availability of coal in the county was a key factor in its limited, earlier industrialization and led to the concentrated patterns of population and industry in the industrial arc (p. 2.40), an area delimited by the limits of the Fife Coalfield (Maps 4.01, 4.02). Economically, the presence of ample, cheap coal constituted a significant causal element in the development along "modern" lines of the

county's industries, notably textiles, paper and board and engineering, while socially it represented a prime motivating force in the increasing concentration of population within the county.² In time, the further development of coalmining and the coal-based industries in the area conditioned the transport links in the area. However, to place this earlier development in Fife in its proper perspective, it must be noted that the county, though industrial to a degree, was very much secondary to the Clydeside industrial concentration in the Scottish setting (p. 2.36).

The secondary status of Fife as an industrial region in Central Scotland was also relevant in coalmining until the post-1945 period when the Fife and Clackmannan Coalfield was designated as the principal "growth area" in the Scottish coal industry.³ However, despite liberal injections of capital for modernization and for new sinkings, the industry in Fife never realized this status or potential. The new sinkings failed to enter production as quickly as planned, while the capital invested in the modernization and mechanization of units with the potential for long-term expansion also failed to raise production. With output stagnating and manpower rising rapidly in excess of the expected increase, productivity in the industry declined alarmingly and had the effect of raising the costs of production to a level which reduced the competitiveness of coal in the energy market. All of these factors, together with changing economic demands for coal at the national level, initiated the rapid rationalization and drastic pruning of the coal industry in Fife from 1957. From a "growth industry" in the early 'fifties coalmining became the

problem industry in Fife by the end of the decade, and with market demand declining, contraction in the 'sixties was virtually inevitable.

The above trends in coalmining in Fife were notable for their variation both in time and in space. While this thesis is concerned primarily with the 1959-67 period, the significance of the coal industry and the nature of the problem posed by the speed and the magnitude of its contraction dictated that, for a valid assessment of its role in Fife, it was necessary to consider it from 1947. Only thus could one grasp the degree of the impact of the changing trends in this industry on the economic base of Fife and on the degree of success achieved in combatting this rapid contraction. Analysis of the statistical data on production, manpower, productivity and the number of operative units suggested two phases in the 1947-67 period with a division at 1957. (Figs. 4.01 - 4.05). In both phases distinct regional variation in distribution in potential for further development and in actual changes in the industry within the county was a notable feature.

Between 1947 and 1957 coalmining in Fife was considered a "growth industry" in which the East Fife Coalfield (Map 4.03) was designated as the "growth area" in the county. By comparison, West Fife (Map 4.03) was committed to a "holding" policy in which uneconomic operation of certain units was accepted in order to maintain output until returns from capital invested in new sinkings and in the modernization of collieries with the potential for long-term development were realized. These roles recognized the differences in the physical basis and in the age and stage of development of

the two areas. East Fife possessed the largest "possible additional reserves" of coal in Fife,⁴ it had a geological structure favourable for modern, mechanized production⁵ and even in 1947 it contained several large, modern collieries.⁶ Against these advantages of operation in East Fife, the West Fife Coalfield⁷ was deficient in estimated coal reserves⁸ while its age of development, together with the physical fragmentation of the area by extensive folding and faulting and the high incidence of vulcanism,⁹ prevented any long-term potential for growth.

The above regional differentiation in the coal industry in Fife during the early period of "growth" was also relevant in the phase of decline between 1957 and 1967. The effects of the rapidly changing trends in coalmining varied spatially throughout the industrial arc of the county. They were especially effective in Cowdenbeath and Leven where the overspecialization in coalmining and its substantial contraction from 1958 created the rapid decline in the industrial base of these areas and designated them as the problem areas in the county (p. 3.50). By contrast, Kirkcaldy-Glenrothes and Dunfermline were not only less dependent on coalmining but were also favoured by the trends in the industry, the decline in the former area being relatively moderate (p. 3.45) while employment in coalmining actually expanded in the latter (p. 3.46).

The decline of coalmining in Fife and more so, the speed and magnitude of this decline, carried grave implications for the entire county. Firstly, the coal industry in the county represented the mainstay of the economic base, directly employing almost one-half of the insured population in industry in 1959. The contraction in employment in this industry was the principal factor in the

decline in the industrial base of Fife between 1959 and 1967. Secondly, the contraction of coalmining had other less direct, but important, effects on the "milieu" of the county. It left a legacy of physical dereliction in the landscape, notably in the Lochgelly-Cowdenbeath area, which was considered to be a deterrent to the attraction of new industries to Central Fife. (p. 2.45).¹⁰ The decline was also partly responsible for the rise in unemployment in the area but more significant in the longer term development of the county, it increased the momentum of emigration from Fife, emigration in which the age-selective nature was removing the vital elements of the labour force and which was mainly instrumental in the net loss of population in the 1961-66 period (Chapter VI). However, against these disadvantageous effects of the decline of the coal industry one must recognize that the contraction focussed attention on the problems of the area and was thus important in the introduction of government action to ameliorate the situation. Development district status, providing the incentives necessary to attract the new industries essential to diversify and strengthen the economic structure of the area, was conferred on parts of Fife in 1960 (p. 2.34) and again in 1963 (p. 2.40). These incentives provided by development district status constituted one factor in the introduction of new industries into the area, industries whose locational pattern initiated the geographical polarization which was emerging in Fife by 1967 (p. 3.65).

Overall, in the context of this thesis, the most important features of coalmining in Fife lay in the speed and magnitude of its decline from 1957-58 and in the differential spatial impact of

this decline within the county. This contraction was attributable to the changing economic demand for coal, a situation applicable not only to the local area but also at the United Kingdom and West European scales.¹¹ The changing market situation initiated a rapid rationalization of coalmining in the county as the older, exhausted and uneconomic units were closed. The details of this rationalization were conditioned by economics in which the physical extent, form and structure of the various coal areas and the evolution of mining in each area were significant factors. In this, the evolution reflected the physical endowment, the shallower coals on the margins of the basin structures having been exploited in the early stages of mining so that by the post-1945 period, extraction was concentrated in the deeper sections. This increased costs of operation and affected the competitiveness of coal in the energy market.

The Physical Background to Coalmining in Fife.

The physical nature of the Fife Coalfield and its sub-areas was fundamental to the explanation of the plans for the industry in the county and in controlling the details of the changes in the pattern of coalmining in response to changing economic demand. The impact of the physical worked through economics and was particularly effective in the period of marked contraction in the industry from 1957. Previous to this it was less effective in the pattern since the demand for energy exceeded the supply, a situation which was reversed almost overnight.¹²

The Fife Coalfield forms part of the Central Scotland

Coalfield in which the coal deposits were laid down in beds of shales, sandstones and limestones in a period of complex deposition.¹³ Subsequent tilting, folding and faulting of the strata, and vulcanism, all associated with the Hercynian Orogenesis, diversified the internal structure of the coalfield. Normal erosion processes since then subdivided the main coalfield into a series of localized basins, faulted and folded to varying degrees and each with its own significant geological and geographical peculiarities.¹⁴

This evolutionary sequence and the variety in the degree of folding, faulting, and vulcanism in the different parts of the coalfield have had far-reaching consequences in the development of the coal industry in Central Scotland. Exploitation has shifted in time from the shallower margins to the deeper deposits of the various basin structures, the formation of dykes and sills and the degree to which these magmatic intrusions have led to "Burnt Coals" have created difficulties in extracting coal in several areas, and folding and faulting of the strata have hindered the development of various sections of the coalfield.¹⁵ These physical factors have affected the economic exploitation of the various parts and sub-units of the Central Scotland Coalfield. Age, exhaustion, and the economics of mining, set against the prevailing general economic conditions in time have been, and remain, significant factors in the pattern of coalmining in the area.

The coal-bearing strata in Central Scotland are the Coal Measures and the Carboniferous Limestone Series (Fig. 4.06).¹⁶ Both of these formations are found in Fife, the Productive Coal Measures outcropping in the west and the east of the coalfield

where they overlie the Limestone Coals which outcrop in the central section of the coalfield (Map 4.04).

The Fife Coalfield extends eastwards from Clackmannanshire through Central Fife to Leven and Largo (Map 4.04). The northern limits are set by the Ochil and Durie faults, both sizable downthrows to the south, while in the south the boundaries are taken as the coast in the east and west of the region and by the outcrop of the Dunfermline Splint Coal in the central section.¹⁷

At a more detailed scale of analysis the geology of the Fife Coalfield suggests a tripartite division, East Fife extending eastwards from the Burntisland Anticline, Central Fife lying between the Burntisland and Balmule Anticlines and West Fife running westwards from the Balmule Anticline into Clackmannanshire. Differences in structure and in the degrees of folding, faulting and vulcanism have affected the evolution of mining in these areas. These physical factors have also influenced the critical indices of depths, thicknesses and gradients of the coal seams, thus affecting the economics of operation. By 1947 the balance favoured the East and West Fife sections of the coalfield.¹⁸ These areas had the potential for expansion whereas Central Fife was suffering from both exhaustion and difficult physical conditions and did not rank high in the long-term plans of the National Coal Board in Fife.

East Fife.

The East Fife Coalfield extends eastwards from the Burntisland Anticline to Lower Largo and from the Ochil and Durie Faults in the north to the coast in the south, with a southerly

extension seawards between Kirkcaldy and Lower Largo. (Map 4.05).

The progression of outcrops of older to younger strata from west to east indicated the structure of the coalfield. Basically it is synclinal with the strata dipping to the south-east (Map 4.05). Minor flexurings in the north of the area have modified this general structure into two smaller synclines, (the Thornton-Balgonie Syncline between the Burntisland and Earlseat Anticlines and the Leven Syncline between the Earlseat and Lundin Anticlines), both of which die out to the south of the coalfield.¹⁹ Overall, the strata is not unduly disturbed by folding, particularly in the coastal section.

In terms of faulting and vulcanism, which are generally more significant than folding in the economics of coalmining, a similar pattern to that of folding emerges. Faulting is much more pronounced in the northern section where a series of faults of considerable downthrow to the south disturb the strata. (Map 4.05). In contrast the southern part of this coalfield is "remarkably free of trouble from faulting".²⁰ The coalfield is also free from igneous intrusions in its landward section but a large quartz-dolerite sill has been proved in the undersea workings.²¹

This physical base in East Fife has favoured the area with thick seams of coal at reasonable grades and depths to encourage economic exploitation. The Productive Coal Measures outcrop over a large area and only on the coast do the younger Barren Red Measures attain sufficient thickness to affect exploitation.²² The Coal Measures strata reach their maximum development in the south-west of the region where they are about

1,700 feet thick with 20 workable coal seams totalling around 100 feet of coal.²³ In terms of gradients, the strata on the coast dip to the south-east at approximately 10° - 15° but are more variable inland. However, nowhere do they preclude mechanical extraction or present undue problems in haulage.

The structure of the East Fife Coalfield conditioned its development in time and greatly affected its future as planned by the National Coal Board in the immediate postwar period. The early workings occurred at the outcrops and in shallower parts of the coalfield and progressively moved towards the deeper seams on the coast. By 1945 the thicker seams in the landward section were beginning to show signs of exhaustion,²⁴ and by then the northern limits of exploitation were set by the workings from Wellesley and Cameron collieries.²⁵

The situation at vesting date in 1947 was that the development of coalmining in East Fife had placed the emphasis of future production on the coastal units, Frances, Michael and Wellesley, which would exploit the vast reserves of the Productive Coal Measures under the Firth of Forth, and Dysart New, a proposed new sinking which would work the Limestone Coal Series in the area.²⁶ (Map 4.05). As a result of the favourable physical base and the available reserves in this coastal and undersea section of the coalfield, exploitation would be conducive to modern, mechanized mining and so economic working. East Fife contained sufficient advantages in 1947 to make it a vital area in the plans of the National Coal Board to develop the Scottish coal industry on modern, efficient and economic lines.

Central Fife.

In distinct contrast to the favourable future potential of East Fife, the Central Fife section of the coalfield in 1947 was marked as an area of limited prospects and of decline in the longer-term planning of the industry. Geology and historical development had combined to render it a problem region in Fife coalmining in particular and, as a result of the dependence of the area on this industry, in industry in general. Overall, units were small and old and the reserves of workable coal on the verge of exhaustion.

The Central Fife Coalfield is situated between the Balmule and Burntisland Anticlines and extends south from the Ochil Fault to the outcrop of the Dunfermline Splint Coal. (Map 4.06). The solid geology indicates the structure of the coalfield as a basin pitching down to the north where the Limestone Coal Series is overlain by younger deposits of Upper Limestone strata and a limited areal exposure of the Productive Coal Measures (Map 4.06). The Lochgelly Anticline, sub-dividing the basin into the Cowdenbeath and Bowhill Synclines, modifies the general structure of the coalfield (Map 4.06).

As a result of the higher degree of faulting and vulcanism, the geological basis for coal extraction is more complex and less favourable in Central Fife than in East Fife. Transverse faults, some with considerable displacement of strata, (Map 4.06), cut the fold structures. Fracturing is most pronounced in the west and attains its maximum development in the Cowdenbeath Basin,²⁷ but few faults extend beyond the Burntisland Anticline.²⁸ In addition to

problems of faulting, the Central Fife Coalfield is greatly interrupted by volcanic intrusions which, in places, have either destroyed the coal or greatly affected its exploitation.²⁹

The Cowdenbeath Basin is particularly affected by vulcanism.³⁰

The geological evolution resulted in considerable variation in the depths, thicknesses and gradients of the coal seams in Central Fife. As a result of the basin structure and dip of the strata to the north, the workings are shallowest on the western and southern margins becoming progressively deeper towards the Ochil Fault. The thicknesses of the Limestone Coal Strata and the coals they contain also vary greatly throughout the area, thinning appreciably towards the crests of the anticlines and thickening towards the centres of the synclines. In general terms, the strata is thicker in the west of the area and thins out eastwards to the Burntisland Anticline.³¹ The intense fragmentation of most of the coalfield precludes any possibility of a high degree of uniform dip; Central Fife is characterized by steep workings.³²

The above physical basis of the Central Fife Coalfield dictated its historical development. The shallower areas in the west and south-west were first to be exploited³³ and as these shallower seams were exhausted the pattern of extraction progressively shifted to the deeper sections of the coalfield and to larger unit production.³⁴ The pattern at vesting date was characterized by an outer ring of small, old units working the coals remaining on the shallow margins of the 'field and an inner core of larger collieries tapping the deeper seams to the north.³⁵ The troubled geology, the age and stage of exploitation and, above all,

the limited reserves of coal in this area, designated it as having only a limited future in the long-term plans of the National Coal Board. Any small increase in production would be achieved from the larger, deeper units in the north of the basin, but this would be more than offset by the exhaustion of several of the smaller and older collieries in the area.³⁶

West Fife.

The West Fife section of the coalfield extends westwards from the Balmule Anticline towards Clackmannanshire. It is bounded by the Ochil Fault and its numerous bifurcations in the north and by the coast in the south where it is linked under the Firth of Forth to deposits in the Lothians. (Map 4.07).

Structurally, West Fife is a basin dipping from the Balmule Anticline to the west where the Limestone Coal Group is progressively overlain by younger rocks. Like Central Fife, this area is affected by minor folds and transverse faults which have resulted in a series of fold-fault-bound basins leading to separate development.³⁷ Vulcanism is also apparent in the area.

By 1945, the evolution of coalmining in West Fife had exhausted most of the area except Comrie-Valleyfield which had the potential for further development. This sub-area had significant reserves, particularly under the Forth Estuary,³⁸ coals were sufficiently thick and at gradients suited for large-scale mechanical extraction³⁹ and the existing units were large and modern.⁴⁰ This area was the second "growth area" in the National Coal Board plans for the development of the Fife Coalfield.

Thus the physical basis, and through this, the age and

stage of development of the various sub-areas of the Fife Coalfield indicated that in 1947 the future potential of the coal industry lay in the coastal units in both East and West Fife. Increasingly, production would be won from deposits under the Firth of Forth. By comparison, the Central Fife Coalfield would decline. This regional differentiation in potential was recognized by the Scottish Coalfields Committee in 1944⁴¹ and by the National Coal Board in 1950.⁴² Both advocated the development of East and West Fife sections of the coalfield and a phased decline in Central Fife.

Coalmining in Fife. 1947 - 67.

Coal as a Growth Industry 1947 - 57.

The analysis and assessment of the coal industry in Fife between 1947 and 1967 must be viewed against changing plans for the industry in Scotland. This period represents the operation of coalmining as a nationalized industry. To 1957, Fife was considered a "growth area" but from 1957 its status altered to decline. Changing economic conditions were responsible for this sudden reversal of trends.

The nationalization of the Scottish coal industry on January 1st., 1947 endowed the National Coal Board a major industry which was in urgent need of rationalization, rehabilitation and revitalization. Production had been declining from a peak of 42.5 million tons in 1913 and had fallen to 30.25 million tons in 1946.⁴³ Strikes, poor labour relations, mutual distrust between management and labour and poor conditions of employment had created a distinct lack of confidence in the future of the industry and had sapped its strength and efficiency.⁴⁴ Declining manpower as a result

of mass unemployment during the interwar period and the increased, alternative employment opportunities afforded by the war was a major problem facing the new administration. This alternative employment provided an escape from the harsh and hazardous occupation of mining and those who remained were, in the main, embittered by their previous experiences in the industry.⁴⁵ In addition, the gross undercapitalization of coalmining during the interwar depression and in the second world war⁴⁶ was a critical factor in planning the future operation of the industry which by its nature is capital intensive. Mechanization of production was conspicuous by its⁴⁷ paucity and modernization was essential.

Another major problem lay in the urgent need to rationalize the pattern of coalmining throughout Scotland. At vesting date, the National Coal Board assumed control of 275 units most of which were small and had been managed by no fewer than 120 companies. Of these units, 79 were left under private ownership to operate under licence from the National Coal Board and a rapid survey of the remainder showed that, as a result of physical and economic decline due to age and/or exhaustion, over half would close by 1965 at the latest.⁴⁸

The above summary indicates briefly the problems confronting the National Coal Board in Scotland in 1947. The early period of nationalization was devoted to the organization of the industry's administration and production and in planning its future operation. Planning proved an especially difficult task in which the economic circumstances of the immediate postwar period were a vital consideration. The demand for coal was high, this at a time

when both production and manpower were declining, mechanization and capital investment were low, and modernization essential to efficient production was a dire necessity. The coal industry was ill-equipped to meet the challenge. Planning thus had to be both short-term and long-term, the former to increase production from existing capacity and the latter to meet the longer term needs for coal. The measures adopted were outlined in the "Plan for Coal"⁴⁹ which was the effective statement of planning policy for the coal industry in the United Kingdom until it was replaced by the "Revised Plan for Coal" in 1959.⁵⁰

The basis of the "Plan for Coal" was the urgent necessity to expand production to meet the estimated demand for coal in the 1950-65 period. The production target set to meet the estimated demand was the crucial index which conditioned the statistics on manpower and capital expenditures. Scottish coal production was estimated to attain 30.6 million tons per annum by 1961-65, 21.6 million tons to satisfy the home market and the remaining 9.0 million tons to be produced cheaply enough to be competitive in England and Wales and in overseas markets.⁵¹ Spatially, this expanded production would be drawn from three coalfields, especially from Fife and Clackmannan; the Central Coalfield would continue to contract. (Table 4.01).

The increased production would be effected by a rise in productivity. The "Plan for Coal" estimated that manpower in Scottish coalmining would decline to 1961-65, mainly as a result of contraction in the Central Coalfield (Table 4.02). Manpower would increase in the three "growth areas" but in each case the increase would be much lower than in production. The rise in

productivity was expected to be highest in Fife and Clackmannan, which in 1949 was already the leading area in this index. (Table 4.03).

To achieve this goal of higher productivity a major programme to develop new capacity and to modernize and mechanize existing units having the potential for long term expansion was essential. To this end the "Plan for Coal" allocated an estimated expenditure of £64.3 million for Scottish collieries to 1961-65.⁵² The Fife and Clackmannan Coalfield was scheduled to receive £21.0 million of this capital expenditure, most of it to be invested in three proposed new sinkings in the area.⁵³

These estimates of production, manpower, productivity and capital expenditure clearly indicated the significance of the Fife and Clackmannan Coalfield as the principal "growth area" in the future development of the Scottish coal industry. It was estimated that by 1961-65, this coalfield would have received 32.7% of the total investment in Scottish coalmining and would be producing 35.9% of Scottish coal with only 32.7% of the industry's manpower.

The "Plan for Coal" carried two important and far-reaching implications for the coal industry in Scotland. Firstly, planning had to be both short-term and long-term (p. 4.16). In the former the basic need was to raise output rapidly to meet the market demand for coal, but exhaustion of capacity in the Central Coalfield and on the margins of the other areas made this difficult. The National Coal Board planned to overcome these problems by expanding production in the better existing units, augmenting this by a series of short-

term drift mines and by prolonging the life of units where economic operation was not being realized but which still possessed coal. This would affect the economics of operation.

In the longer-term plans, the continued contraction in the Central Coalfield would be offset by expansion in the other three. Development in these three coalfields would occur by the sinking of new ultra-modern units and by the reorganization and modernization of existing collieries with sufficient reserves and potential for expansion. The evolution of coalmining had exhausted the older, shallower margins and the emphasis in future operation was placed on deeper units involving high capital investment which necessitated the move to larger, more modern collieries working more extensive areas of coal to gain scale economies sufficient to justify the expenditure and enable profitable operation. Increased productivity was essential for the success of the plan.

The short-term and long-term plans for the coal industry were linked by the crucial need for phased development. The "holding" policy dictated by short-term considerations would be replaced in time by the long-term plan as newer and more modern capacity entered production and allowed the older, smaller, and uneconomic units to be phased out of operation. This phasing was vital to the entire plan. It was imperative that the new and re-organized capacity was brought into full production as soon as possible. Failure to achieve this would affect the competitiveness of coal in the market.

The second main implication of the plan for the Scottish coal industry was essentially geographical since it would result in

the gross rationalization of the pattern of coalmining in Scotland. This would be effective at both the regional and sub-regional scales. The balance of coalmining would move from the Central Coalfield to the other three while within each coalfield area the emphasis would shift to fewer but larger operating units, each exploiting deeper seams and more extensive fields of coal from one location. This rationalization can be shown by several indices such as number of units, manpower per unit and production per unit, all of which are used in the analysis and assessment of coalmining in Fife in this thesis.

These general aims in planning the coal industry in Scotland, namely to increase production to meet both the short- and long-term demands for coal while effecting the rationalization and modernization necessary to create an economically-sound industry, carried specific implications for Fife. As such, these implications had to recognize the regional differences in the structure, age and stage of development, available reserves and future potential for increased output in the various sections of the coalfield. This spatial differentiation dictated the role assigned to each section in the post-1950 period. In the context of this thesis, each coalmining area in the county possessed a different "milieu" in its potential for growth. The plans for the industry would increase these differences and have repercussions on the industrial base of these areas.

The "Plan for Coal" designated Fife and Clackmannan as the "growth area" in Scottish coalmining (p. 4.17). The Fife section of this coalfield was the main centre of planned development

and potential growth. This was particularly true of East Fife which possessed significant advantages for development. The importance of Fife in general and East Fife in particular is shown in the estimated statistics for 1965 in production (Table 4.04), manpower (Table 4.05) and productivity (Table 4.06).⁵⁴

The emphasis on East Fife and Comrie-Valleyfield in the future development of the Fife Coalfield was correct in view of existing circumstances. The estimated reserves and possible additional reserves in these areas were substantial (Table 4.07); the geological basis was conducive to economic exploitation (ps. 4.10 and 4.13), both areas had achieved a measure of rationalization in terms of size of units (Table 4.08),⁵⁵ and both possessed modern units with a degree of mechanization.⁵⁶ In contrast, Central Fife, although having several sizable units, (Table 4.08), all located in the deeper, northern part of the basin, lacked the reserves for any long-term development (Table 4.07). Its role in the industry in Fife was correctly classified as short-term.

The Actual Performance v. Estimated Role. 1947-57.

The evaluation of the actual performance against the estimated role of the coal industry in Fife between 1947 and 1957 has been based on statistical indices denoting efficient operation.⁵⁷ The analysis of these indices indicated significant variation between the expected and the actual trends. In general terms, the expected rise in production never materialized, manpower increased rapidly above the anticipated rates and the pattern set by relatively static production and rising manpower implied declining productivity. Overall, when compared with the optimistic

forecast, the actual record was one of abject failure in which the inability to realize sufficient increases in production and productivity was the main causal factor. This poor performance was especially disappointing since capital investment in new and reorganized capacity, in mechanization and modernization of the industry exceeded the original estimates. Spatially, in the light of obvious advantages and anticipated growth, the trends in East Fife were the most disappointing.

East Fife.

The East Fife Coalfield was the principal growth point in the planned development of coalmining in Fife. Planning in this area was essentially long-term but included provision for the short-term need to boost production within an overall programme of phased rationalization. However, in terms of actual performance, the dismal failure of this area to raise production and productivity resulted in its eventual decline in the 1957-67 period.

The detailed planning of coalmining in East Fife was based on raising production by 104.3% between 1949 and 1965, (Table 4.04), to be achieved by increasing the manpower complement by 28.8% (Table 4.05) but more so by raising the productivity of the area to an annual average of 500 tons per man (Table 4.06) as a result of increased capital investment in new and reorganized capacity (p. 4.17). These targets were expected to be realized within a programme of phased rationalization, a programme which considered both the short and long-term demands on the industry (pp. 4.17 - 4.18).

At vesting date, East Fife contained ten productive units

of which only four were scheduled to be in operation by 1960 (Table 4.09; Map 4.08). Exhaustion would close the others, Thornton Mine, Rosie, Randolph and Balgonie by 1955⁵⁸ and Cameron and Wellsgreen by 1960.⁵⁹ Phasing was an important aspect of this rationalization, the older, exhausted collieries being phased out of operation as new sinkings entered production and as the modernization and reorganization at units with long-term potential realized increased output. Closures to 1955 (Thornton and Rosie) would be offset by expansion at the larger units, especially at Michael and Wellesley,⁶⁰ and by a new short-term drift mine at Earlseat. (Map 4.08). Continued growth in these units and the entry into production of the proposed new sinking at Rothes⁶¹ would increase the rate of closures, so that Randolph, Balgonie, Cameron and Wellsgreen would cease production by 1960. (Table 4.09).

The long-term plans for East Fife, which never materialized due to changing economic demand for coal but which were nevertheless important in the earlier phase of planning, indicated that, by 1975 production would be concentrated in five large, modern units.⁶² The Michael, Wellesley and Frances collieries would exploit their advantageous locations to extract the remaining reserves of the Productive Coal Measures in the inland coastal strip and the vast deposits under the Firth of Forth,⁶³ Rothes would concentrate on the Limestone coals east of the Burntisland Anticline,⁶⁴ and another new sinking (Seafield) would be located to work the Limestone coals which outcrop to the west of Kirkcaldy and then, by means of horizon mines, to extract the undersea Productive Coal Measures in that area.⁶⁵

In actual performance East Fife failed to fulfil its projected role. The success of the phased programme depended on the ability of this area to increase production and productivity substantially, but it achieved neither. Consequently, the life of units scheduled for closure was prolonged and this, together with manpower rising above the planned rates, affected the economic operation of this coalfield. In time, rising costs and rapidly changing market demands necessitated the reappraisal of the coal industry, a reappraisal which initiated the drastic surgery associated with coalmining in Fife in the 1957-67 period.

After an initial increase in production to 1949, output in East Fife remained static to 1957. (Table 4.10; Fig. 4.07). This contrasted markedly with the projected increase of 2.4 million tons (+104.3%) from 1949 to 1965 (Table 4.04) and was particularly disappointing since manpower was rising and capital was being invested in the modernization and mechanization of the capacity in the area.

Despite capital investment in mechanization and the stress placed on the need to raise productivity, productivity declined to 1957. In terms of annual average output per man the expected 500 tons by 1965 (Table 4.06) never appeared likely to 1957. (Table 4.11; Fig. 4.08). This index of productivity declined markedly. Similar trends were apparent in productivity per manshift at the coal face and overall (Table 4.12; Figs. 4.09 and 4.10 respectively). The initial rise in both these indices to 1949 was not maintained and decline was fairly consistent to 1957.⁶⁶

Productivity is a function of production and manpower.

Thus in East Fife, the static production and declining productivity implied rising manpower. Manpower in the area was estimated to increase by 2,100 (+28.8%) between 1949 and 1965 (Table 4.05), an increase which would be absorbed by the larger units possessing the potential for long-term expansion and which would include men from collieries phased out of operation both in Fife and in other parts of Scotland, notably from the Central Coalfield.⁶⁷ The record for East Fife showed that manpower rose above the planned expectations for, by 1957, this area employed 10,100 men and Rothes was not yet in production. (Table 4.13; Fig. 4.11). Growth was concentrated in the coastal units which were integral parts of the long-term policy for the area (Table 4.14).

In terms of rationalization of the pattern of production, the phased programme was carried out as planned to 1955. Earlseat entered production in 1951 and exhaustion closed both Thornton and Rosie in 1953 (p. 4.22), the miners from these units being absorbed by others in the area. However, from 1955 the expected rapid acceleration of closures was delayed. Randolph and Balgonie, both due for closure in 1955,⁶⁸ were reprieved as doubts arose on the ability of the new capacity at Rothes to materialize on schedule⁶⁹ and as the reorganization at the coastal units failed to increase production to meet the planned output. This rationalization was evident in terms of the average manpower per unit but with the failure to raise production did not show in the average output per unit (Table 4.15) (Figs. 4.12 and 4.13). The average unit was larger but only marginally more productive than in the early period of operation.

Overall, the dismal failure of the industry in East Fife lay in its inability to raise production and productivity despite favourable conditions of a physical basis suitable for growth and a capital investment which was even higher than that anticipated in the "Plan for Coal." (p. 4.17; Table 4.16). The underlying cause of this shortcoming was the failure to bring the new and reorganized capacity to fruition in time, this in spite of the fact that the planning of the industry stressed that this capacity had to be brought into production as quickly as possible to allow the phased rationalization to be effected. This tardiness in completing major schemes was true of all new capacity in general and Rothes in particular.

Rothes was a "vital link in the systematic development of the valuable reserves of the Fife coalfield."⁷⁰ Nothing was left to chance in the planned surface and underground layout of this ultramodern colliery. The underground layout, with conveyor haulage to central loading points, mechanical loading facilities and the latest mechanical means of coal extraction, was planned for high productivity, which was estimated to reach 40 cwt. per manshift overall and 44 cwt. per manshift underground. Production was expected to attain a level of 5,000 tons per day, worked in two-shift system.⁷¹ Had this production and productivity been achieved, the record of the entire East Fife coalfield would have been greatly enhanced. However, Rothes Colliery proved to be a gigantic and costly "white elephant".⁷²

This continued operation of uneconomic units (p. 4.24) aggravated the already rising costs of coalmining in East Fife.

The area, despite its favourable physical base for mechanized coal production and the expectations that the industry would continue to be profitable, operated at a loss from 1952. This deficit operation increased each year with the exception of 1956 with the largest losses in the 1955-57 period. (Table 4.17; Fig. 4.14). In the breakdown of the costs of operation the high percentages devoted to miners' benefits, notably in wages and allowances in kind, and the rise in this category indicated the significance of the overmanning of coalmining in the area. The overall effect of the rising costs of operation was to place the industry at a disadvantage in the market relative to the other sources of fuel and power. The radical change in market demand and available energy supplies in 1957 heightened this problem in the coal industry in Fife and eventually led to its declining status (pp. 4.32 - 4.38).

West Fife.

The role proposed for West Fife in the planned development of the Fife Coalfield contrasted markedly to that of East Fife. The anticipated increase in production was much lower (Table 4.04) and was expected to be won by fewer employees (Table 4.05). Higher mechanization and capital investment in the modernization of a limited number of units selected on the basis of future potential was expected to raise production and productivity and enable the rationalization of the pattern of production to be effected, resulting in a smaller but much more efficient industry. Phasing would be an important aspect of this pruning. Overall, the role of West Fife was that of an area committed to the short-term "holding"

policy (p. 4.20) in which the emphasis was on maintaining output until new and reorganized capacity materialized in this area and in the rest of Fife.⁷³ This implied the continuation of certain units beyond their time of economic exploitation.

The detailed planning of the coal industry in West Fife was determined by the aim to increase production by 0.4 million tons between 1949 and 1965 (Table 4.04). It was anticipated that, as a result of investment in mechanization, in short-term drift mines and in the reorganization and modernization of existing capacity with potential for growth, this could be accomplished with a reduction of 8.0% in manpower, (Table 4.05), implying a rise in the average annual output per man to 380 tons (Table 4.06). As in East Fife, these objectives were set in a programme of phased rationalization of the pattern of production in the area.

In terms of number of units, manpower, production and productivity in 1947, the status of West Fife in coalmining exceeded that of East Fife. However the "troubled" geology (p. 4.12), the age of development which had exhausted large areas of coal, (p. 4.12) and most of all the lack of reserves (Table 4.07) in the central basin determined that plans for this area were basically short-term and that the rationalization programme would be rapid, particularly from 1955 when the new and reorganized capacity was expected to have materialized to allow the older, uneconomic units to be phased out of production.

At vesting date, the National Coal Board assumed control of twenty-two units in West Fife, four in the Comrie-Valleyfield section and the remainder in the central basin; in addition, to

increase production rapidly in the short-term, three new drift mines (Blairnbathie, Windyedge and Torry) were developed.⁷⁴ (Map 4.09). Table 4.18 summarizes the proposed rationalization of the industry in West Fife. Proposed closures to 1955 were confined to units where exhaustion precluded exploitation (Isle of Cnty; Oakfield; Wellwood; Windyedge) but as new capacity was brought into production, the rate of closures from 1955 would accelerate with Blairnbathie, Dora, Lumphinnans I,⁷⁵ Nellie, Jenny Grey and Dundonald,⁷⁶ all working the older, shallower margins of the central basin (Map 4.09), expected to cease production by 1960. In the longer-term, it was estimated that in the Central Fife area only Bowhill Nos. 1 and 2, Glencraig, Lindsay and Fordell would still be in production by 1975.⁷⁷ All of these units except Fordell were located in the deeper, northern section of the coalfield. (Map 4.09).

The general assessment of the actual record of West Fife was similar to that in East Fife (p. 4.23). The expected slight rise in production never materialized, manpower increased faster than anticipated and instead of rising, productivity declined. Overall, this area failed to fulfil its designated role in the planned development of the coal industry in Fife although the magnitude of this failure and of the consequences for the county was less than that in East Fife. The failure to raise output and productivity affected the economics of coalmining in the area and this lack of economic operation, together with its deficiency in estimated reserves, rendered it prone to radical pruning from 1957 when the demand-supply situation in the market altered.

In terms of production, the expected slight increase to 1965 never materialized. The rise in output to 1949 as a result of the new drift mines (p. 4.28) and the increase in manpower and mechanization was not maintained, and a steady decline in production was recorded from 1949 to 1957. (Table 4.19; Fig. 4.15).

The failure to increase production was heightened by the trends in manpower. (Table 4.20; Fig. 4.16). As a result of redundancies in the central basin as the phased closures of the smaller, exhausted and uneconomic units proceeded, manpower in this area was estimated to decline by 8.0% between 1959 and 1965 (Table 4.05) but it actually increased by 8.0% to 14,800 in 1957, 2,200 above the estimate for 1965. The increase was in the larger units in the area as planned (Table 4.21).

Declining output and rising manpower obviously affected the aim to increase productivity in West Fife. The decrease in the annual average output per man (Table 4.22; Fig. 4.17) contrasted with the expected rise in this index to 380 tons by 1965 (Table 4.06), while the trends in the output per manshift for both face and overall workers also indicated this failure to raise productivity. (Table 4.23; Figs. 4.18 and 4.19 respectively).

In terms of rationalization, the programme was carried through as planned to 1955, Blairenbathie opening in 1948, Torry Mine in 1954 and exhaustion closing Isle of Canty (1948), Oakfield (1948), Wellwood (1950), and Windyedge (1951). However, from 1955 the failure to increase production and productivity and to realize the new capacity in East Fife delayed the further planned closures in the area. Overall, the aim to create larger,

more efficient units was achieved in terms of manpower per unit (Table 4.24; Fig. 4.20) but not in production per unit. (Table 4.24; Fig. 4.21).

The evaluation of the actual performance of West Fife between 1947 and 1957 in the planned development of the Fife Coalfield was that it failed to fulfil its designated role, the basic failure lying in declining production which, with manpower rising, led to decreasing productivity. The underlying causes of these trends were attributable to the tendency to overman the industry and to the fundamental difficulties emanating from the troubled physical base and the age and stage of development of several of the units in the area. In this, the responsibility must be carried by the larger units which had potential for further development. They had been expected to compensate for the closures of the older, exhausted units, and, with the proposed rationalization to 1955 being effected, the failure to hold production lay with the units of longer-term potential. This was most disappointing, particularly by the latter part of the period by which time several capital schemes had been completed at these larger units. (Table 4.25).

As in East Fife (p. 4.25), the continued operation of uneconomic units necessary to maintain production initiated rising costs of coalmining in the area (Table 4.26; Fig. 4.22), which, with changing market conditions by 1957 and lack of reserves, placed West Fife in a precarious position. From 1957 the changeover in policy to economic working and the increasing exhaustion of capacity signified a rapid decline in the coal industry in this

area (pp. 4.32 - 4.38).

Thus, overall, in the context of the entire Fife Coal-field, neither East Fife nor West Fife succeeded in their designated roles. However, the degree of failure was greater in East Fife since less was expected of West Fife in terms both of production and productivity and of anticipated status in the long-term development of the industry in Fife. The plans for East Fife were essentially those of expansion compared with the short-term "holding" policy applied to West Fife. In this writer's opinion, the main causal factor in the inability of these areas to fulfil their designated roles in the overall plan for coalmining lay in the gross overmanning of the industry, especially in non-face or "oncost" workers. In this, the East Fife area, with physical conditions eminently suited to large scale mechanical extraction and movement of coal and the subject of substantial capital injections in modernization, constituted the principal offender. Without doubt the conditions existing in the earlier stages of the 1947-57 period were most important in this trend. The demand for coal in this period greatly exceeded the supply and initiated a "coal at any price" policy in the industry; a shortage of manpower in coalmining was a major problem facing the National Coal Board; the labour force in the industry was, probably for the first time, in a sound bargaining position to impose demands which were seldom refused by a management critically aware of the need to raise production and of the problems of manning this vital industry. Overall, this over-manning in Fife coalmining together with the unfavourable trends in production led to declining productivity

and again East Fife was the principal failure in this index (Tables 4.12 and 4.23). In time, these shortcomings in production and productivity increased the costs of operation in both sections of the coalfield, turning them into deficit-operating areas (Tables 4.17 and 4.26), particularly East Fife. By 1957, when the demand-supply factor altered to a consumers' market, both East Fife and West Fife were prone to the rapid changes which occurred in the ensuing 1957-67 period.

The Period of Decline and Its Implications: 1957-67.

The second phase of coalmining in Fife in the post-1947 period was characterized by the rapid decline of the industry, a decline in which crucial changes in the indices of production, manpower and productivity were apparent. Production declined throughout the 1957-67 period mainly as a result of the run-down of the industry in West Fife (Table 4.27: Fig. 4.23). It was accompanied by a substantial cut-back in manpower, again notably in the West Fife section of the coalfield (Table 4.28: Fig. 4.24). As a result of the drive for greater efficiency and economic operation and of the above trends in production and manpower, the productivity for face and overall workers rose markedly, especially in East Fife, (Table 4.29: Figs. 4.25 and 4.26), but although this rising productivity reduced the operational deficit in Fife coalmining, it was not sufficient to enable the industry to function at a profit (Table 4.30: Fig. 4.27). The above changes took place within the continuing policy of rationalization of the pattern of production (p. 4.19) but, with demand declining, the closure of

exhausted and uneconomic collieries was accelerated and as a result the industry in Fife had been reduced to a "rump" of only seven units by the end of 1967.⁷⁹ The growth industry of the 'fifties had been pruned almost to the point of insignificance in the 'sixties. In this pruning, the changes effected had important repercussions on the social and economic "milieu" of Fife, repercussions which symbolized the problem facing the county and its development in this period.

The catalyst in these trends in coalmining in Fife was the rapid and radical change in the demand for energy in general and coal in particular. Until 1957 the demands for energy in the United Kingdom were rising. Coal production was sufficient to meet these demands in the initial stages of the 1947-57 period, but from 1954 the failure to increase production created the "coal gap" in which coal provided a decreasing proportion of the total energy requirements of the country.⁸⁰ This had far-reaching implications when the energy market declined in 1957 and coal entered a phase of intense competition for which it was ill-equipped to meet the challenge of other energy sources, notably oil.⁸¹ The strain to increase output in the earlier period and the failure to realize new capacity in time meant that by 1956 new capacity and increased efficiency were merely compensating for exhausted units,⁸² a situation which affected the economic operation and raised prices. Further, the "coal gap" had forced the market to seek alternative sources of energy, a policy which was encouraged by government⁸³ and which resulted in the loss to the industry of former coal markets. The fall in demand for coal as a result of

industrial recession, of increasing efficiency in its use and of the rising impact of the "Clean Air Act" climaxed in 1957 when the total energy demands for the United Kingdom declined.⁸⁴ This affected the planning of the industry which until 1957 was conditioned by rising market demands and the need to boost production to meet these demands.⁸⁵ In this period it was planned as a growth industry but from 1957 it was geared to contraction,⁸⁶ in which economic operation was essential to compete in market. This general situation had repercussions on the various coalfields throughout the country and in Fife it led to the "rump" pattern of 1967.

The decline in demand for coal⁸⁷ created a situation of excess capacity in the industry and necessitated a re-appraisal of its future development. The findings of this re-appraisal were embodied in the "Revised Plan for Coal". Compared with the "Plan for Coal" (1950), the estimated demand for coal in 1965 was reduced to 200-215 million tons, an estimate based on the assumption of a proportionately reduced demand for coal in a rising energy market and on coal's competitive position in this market. Economic operation was essential and to achieve this, manpower would be reduced, productivity raised by increased mechanization, control of recruitment and by the concentration of management on higher efficiency and a much greater emphasis would be placed on quality controls and sales promotion. The programme of rationalization would be speeded up with the closures of units nearing exhaustion and/or operating unprofitably. In this rationalization and cut back in capacity the social aspects of proposed closures would be considered.

This revised plan for the British coal industry carried specific implications for Scotland and more so, in the context of this thesis, for Fife. Against the background of coalmining in the national situation, the role of the Scottish Division in the overall plan was conditioned by the same general aims. The estimated production for 1965 was 18-20 million tons to be won by 68,000-76,000 men,⁸⁸ both these estimates depending on the demand for coal. Productivity was expected to rise as new and reconstructed capacity materialized, and it was estimated that nearly 80% of Scottish output by 1965 would be produced by these units.⁸⁹ The realization of this new capacity would speed up the rate of closures of high cost collieries and those whose reserves were nearing exhaustion. Within the Scottish framework Fife was still considered a developing area,⁹⁰ a status which, in view of the continued contraction in the Central Coalfield, implied rising production in this area. However, in terms of actual performance this did not materialize (p. 4.32).

Throughout the period to 1967 these estimates were subject to revision, notably in 1962 and in 1965,⁹¹ and each revision stressed declining demand which indicated that the revised plan had overstated the likely market for coal. Despite rising productivity as a result of new and reconstructed capacity, increasing mechanization, reductions in manpower and the closure of uneconomic units, the Scottish mining industry failed to produce coal at a price sufficiently economic to combat the challenge from other sources of energy. This failure quickened the pace of closures which by 1967 left a small but modern and productive industry.

The statistical record for Fife in the 1957-67 period

has been summarized, (p. 4.32), the indices used in this summary helping to explain the evolution of the pattern of coalmining in the county. In the context of this thesis, the most significant factors were the details of the rationalization of production and its effects on labour. The spatial variation in these trends were important economically and socially.

The rationalization of productive capacity and its impact on manpower is shown in Table 4.31. Analysis of this table indicated two phases, 1957 to 1961 in which closures were virtually restricted to units whose reserves were exhausted and 1962-67, a period characterized by an increased number of closures as a result of uneconomic operation. In the first phase nine units were closed by exhaustion, Earlseat (1958), Cameron and Wellsgreen (1959) and Balgonie (1960) in East Fife and Jenny Grey and Lumphinnans 1 (1957), Benarty and Dora (1959) and Cowdenbeath 7 (1960) in Central Fife.⁹²

The second phase represented the period when the urgent need for economic operation crystallized.

"The size of the Mining Industry in Scotland over the next five years will be determined by the amount of coal that can be sold. Production must be in broad accord with demand, not only in total volume, but also as regards sizes and sorts."⁹³

This statement conditioned the plans of the broad pattern of production in Scotland and in Fife in the 1962-66 period. Units were classified on the criteria of available, workable reserves and potential profitability.⁹⁴ (Table 4.32). The implications of the review for Fife were both obvious and grave. The industry in the county would be subjected to radical pruning in which production would be concentrated in the favoured areas in coastal East Fife

and in the Comrie-Valleyfield section of the coalfield. The indications for Central Fife were a drastic curtailment of coal-mining. By 1965 several closures had been effected, economics closing Rothes (1962) and Bowhill (1965) and exhaustion being responsible for the closures at Aitken (1963), Dundonald (1964), Lindsay (1965), Nellie (1965) and Torry (1965). (Table 4.31). With the exception of Rothes and Torry all of these units were in Central Fife (Map 4.10). These closures were cushioned by the entry of Seafield into production in 1962.

The final blow to the coal industry in Fife was outlined in the second five year review (ref. 90; p. 4.35) which proposed further drastic pruning of units in the county. (Table 4.33). Only four collieries, Michael and Seafield in East Fife and Comrie and Valleyfield in the west of the county, were likely to continue in operation. In terms of actual rationalization, at the end of 1967 only Frances, Lochhead, Seafield, Randolph, Blairhall, Comrie and Valleyfield were in production and of these Randolph closed in April 1968. (Table 4.31; Map 4.10). As anticipated, the majority of closures were in Central Fife and in 1966 alone, five units closed in this area. Exhaustion was responsible for the abandonment of Fordell, Mary and Kinglassie while economics closed Glencraig and Lumphinnans 11 and 12. The closure of Minto in 1967 was the result of rising water from the workings abandoned at Mary and Kinglassie.⁹⁵ In East Fife, economics closed Wellesley in 1967 and Michael was shut by an explosion disaster in the same year.⁹⁶

In terms of manpower the spatial impact of rationalization was most pronounced in West Fife but was also significant in East

Fife. (Table 4.28; Fig. 4.24). In West Fife, the 1957-67 period witnessed the demise of coalmining in the central basin but stability in the numbers of wage-earners existed in the Comrie-Valleyfield section of the coalfield (Table 4.31). In East Fife, manpower was reduced by more than half. (Table 4.28). In the context of this thesis, this reduction of manpower was crucial to the industrial structure of the entire county but especially to Cowdenbeath and Leven both of which were highly dependent on the coal industry. (Chapter III). This decline and more so, the rate of the decline, constituted the principal problem for Fife in this period.

In overall summary, when viewed against the general background of the slumping demand for coal and the need for economic operation, the rationalization of the number of units and manpower in Fife was inevitable. The progressive reductions in demand curtailed production and with the materialization of the capital investment in mechanization and in new and reorganized capacity, this demand could be met by fewer units and fewer men.⁹⁷

During the period, the pruning of exhausted and/or uneconomic units created a more efficient industry. Productivity at the coal face had almost trebled in East Fife and more than doubled in West Fife, productivity for all workers had virtually doubled in both areas; (Table 4.29; Figs. 4.25 and 4.26) and the annual average output per man rose in both areas. (Table 4.34; Fig. 4.28). In terms of manpower per unit and output per unit the trends in East Fife differed from those in West Fife. The manpower per unit index in East Fife was fairly stable with the exception of the period 1959-

62 when closures were effected in this area (p. 4.36), but in West Fife it declined until 1967 when the area contained only 4 units. (Table 4.35; Fig. 4.29). In output per unit the cutback in capacity raised this index in East Fife, while in West Fife it remained relatively stable until it increased significantly in 1967. (Table 4.35; Fig. 4.30).

However, despite rising efficiency, the coal industry in Fife never attained economic operation. (Table 4.30; Fig. 4.27).⁹⁸ The operational deficit of the coalfield was reduced during the second phase as the closures of exhausted and/or uneconomic units proceeded but profitable working was never achieved. This constituted the major failing of the industry in Fife and was especially disappointing since the investment in major capital schemes was substantial (Table 4.36). When economic operation became imperative this situation made the drastic curtailment of coalmining in Fife unavoidable.

Overall, the abject record of the Fife Coalfield was attributable to a combination of circumstances external and internal. While the changing demand factor was outwith local control to a large degree, the failure to operate economically lay with the local area and in this aspect, the inability to bring the new and reconstructed capacity into full production on time was crucial. Despite the substantial injection of capital, the record of the Fife Coalfield in this respect was abortive. The area depended on these larger units but their potential never materialized. Economics closed Rothes in 1962, Bowhill in 1965,⁹⁹ Wellesley in 1967 and by 1966 the continuation of production at both Frances and Blairhall was doubtful due to

uneconomic working. (Table 4.33). Overall, it is this writer's considered opinion that the National Coal Board must shoulder a large proportion of the blame for the plight of the industry in Fife during the period. One must speculate that had the emphasis on economic operation instead of production "at any cost" been applied during the period of "growth" then the deplorable situation in the 1957-67 phase could have been avoided. Under these conditions the new capacity would, without doubt, have been realized earlier, manpower would have been held in line with production and as a result, productivity would have been sufficiently high to render economic operation feasible. This assessment holds valid even accepting the need in the earlier stages to retain a degree of uneconomic capacity in order to maintain production and acknowledging the problems of recruiting labour. Certainly the rapid change in demand for coal was difficult to forecast and one must acknowledge the degree to which a capital-intensive industry such as coalmining can adjust quickly to changing market conditions but nevertheless, in their apparent inability to grasp the gravity of the evolving situation and their tardiness to readjust to the emerging circumstances of this situation, the National Coal Board lacked the foresight and urgency of action to cushion the total impact of the contraction in Fife. The entire situation assumed even graver proportions when one considers the degree to which the economic base of the county depended on the well-being of this single industry; in 1959 almost one-half of the total insured population in industry in the county was engaged directly in coalmining.

The decline of the coalmining industry in Fife and, more so,

the speed of this decline, carried significant implications for the county. In general terms, it radically altered the physical, social and economic "milieu" of the area, the changes in the social and economic patterns as a result of this contraction in coalmining being more crucial in the context of this thesis in which they had direct implications. The changes in the physical "milieu" were more indirect and of less consequence in the further industrial development of the county.

The repercussions of the coal industry and its decline on the physical "milieu" of Fife lay in the changing pattern of productive capacity and in the legacy of dereliction which blighted the landscape of the coalfield area. The former is summarized in Map 4.10 which shows the complete demise of coalmining in Central Fife and its marked contraction in East Fife. The latter, with its implications for the attraction of new industry and for the aim of planning authorities to improve the social and physical as well as the economic environment of the older areas (p. 2.22), was more significant.

The Central Scotland programme stressed the need for investment in schemes for the reclamation and rehabilitation of derelict land, particularly for those attempting major, comprehensive rehabilitation in areas of widespread decay such as in Central Fife.¹⁰⁰ In this area the degree of dereliction directly attributable to coalmining was substantial. A survey of Lochgelly District of County carried out by Fife County Council in 1957-58 showed that derelict land from colliery tips, pit shafts and flooded areas caused by subsidence totalled almost 1000 acres which

represented approximately 30% of the total waste land in this area.¹⁰¹ Again, in August, 1965, farmland in Fife damaged by subsidence amounted to over 900 acres including almost 700 acres in farms owned by the National Coal Board.¹⁰² To ameliorate this situation several reclamation and rehabilitation schemes were inaugurated by Fife County Council who accepted this as a measure to improve amenity and living conditions and to remove an obstacle considered detrimental to the attraction of industry.¹⁰³ However, it is the opinion of this writer that the deterrent aspect of dereliction was only of secondary importance in industrial location in the county. (p. 4.05; Chapters VI and VII).

Without doubt, in the context of this thesis the repercussions of the decline in coalmining were much greater on the social and economic "milieu" than on the physical. In this, the impact of contraction was more direct and several indices verify this fact. The radical pruning of the coal industry was not only the principal causal factor in the decline of the county's industrial base between 1959 and 1967 but it was also significant in contributing to the rising unemployment experienced in the area. This contraction in the economic base and the increase in unemployment affected the county's population which declined between 1961 and 1966. Net emigration was effective in this trend and it was not coincidental that the areas of high emigration coincided with those which experienced the greatest contraction in coalmining. Finally, the speed of the decline carried serious problems in planning the future development of the entire county. Spatially, these problems were gravest in Central Fife and to a lesser degree in the Levenmouth

district of East Fife. Both of these areas had been overdependent on the coal industry.

The economic repercussions of the decline of coalmining in terms of trends in employment have been considered elsewhere in this thesis (Chapter III), and it was sufficient here to summarize the conclusions arrived at in that section. Throughout the entire period covered in this study, coalmining was the largest industrial employer in Fife (p. 3.13) and it was also the key industry in changes in industrial employment between 1959 and 1967 (p. 3.13). Overall, as a result of the magnitude of decline, the high degree of specialization in coalmining proved to be the weakness in the industrial base of the county (p. 3.13).

Spatially, the economic problems associated with the contraction of coalmining varied considerably throughout Fife. This resulted from the variations in the distribution of the industry and in the changes which occurred in the period of its decline. The degree of specialization was marked in Cowdenbeath and in Leven, but less so in Dunfermline and Kirkcaldy-Glenrothes. The trends and magnitude of change were similarly different; contraction was substantial in Cowdenbeath and in Leven but both Dunfermline and Kirkcaldy-Glenrothes actually expanded between 1958 and 1967. (Table 4.37).¹⁰⁴ Thus, overall, in terms both of the degree of specialization and of change, the gravest problems were in Cowdenbeath and Leven.

The rationalization and contraction of productive capacity created redundancies in the industry, particularly in the later stages of the period under study. In accordance with the

stated policy of the National Coal Board to cushion the impact of closures,¹⁰⁵ personnel made redundant by closures were offered alternative employment in coalmining either locally or within easy daily travel-to-work distance or elsewhere in the United Kingdom. In addition, recruitment was curtailed to allow redundant miners to be absorbed in the industry,¹⁰⁶ but although this policy was effective in the earlier stages of the period, the speed of contraction rendered it impossible in the later part.¹⁰⁷ The end result was rising unemployment and migration. The opportunities for additional daily travel-to-work became increasingly difficult since contraction was relevant throughout the entire Fife Coalfield with the exception of the Comrie-Valleyfield section.

The degree of availability and suitability of data on unemployment, migration and daily travel-to-work in coalmining precluded any precise analysis of the impact of contraction on Fife. The registered unemployed in coalmining increased between 1959 and 1967, an increase especially apparent in the 1962-64 period and again in 1967. Spatially, as a major contributor to total unemployment, it was most effective at the county level and in Cowdenbeath. (Table 4.38). However, it is this writer's opinion that these statistics underestimate the total impact of contraction on the area since they do not indicate the numbers of ex-miners absorbed into other industries and subsequently made redundant. Employees in this category were registered as unemployed in their previous industry, not in coalmining.¹⁰⁸ Similarly, the recorded unemployment statistics do not give consideration to the multiplier effects of the contraction of the coal industry. In this, the rise in total

unemployment, especially in the tertiary sector, was in part due to the decline in coalmining.¹⁰⁹

The available statistics on daily travel-to-work in Fife coalmining indicated increased mobility from Central Fife to both East and West Fife as the rate of closures in the central area accelerated, but, when compared with the rise in this index in total daily movements of the insured population (Table 4.39), the contribution of the coal industry was relatively insignificant. The general contraction of coalmining throughout the Fife Coalfield and the relative ease of obtaining housing both in Glenrothes and, to a lesser degree, in West Fife, were important causal factors in this situation.

The apparent inability to explain fully the impact of the decline of coalmining on the economic and social "milieu" of Fife by the indices of unemployment and daily travel-to-work indicated that emigration was the principal outlet for workers made redundant by closures. Unfortunately, the available data were not sufficiently comprehensive to substantiate this conclusion in detail. The National Coal Board would not divulge information on the transfer of miners¹¹⁰ but guidelines were available on estimates of total net migration calculated from the 1951 and 1961 decennial censuses and the 1966 sample census. In addition, information was available from personal knowledge of people in the area and from Fife County Council Planning Department. These sources provided indicators that emigration was an important facet of the economic and social geography of Fife and that the decline in coalmining was partly effective in it.

Despite the shortcomings in the available data, evidence existed that substantial emigration of miners from Fife occurred as part of the National Coal Board policy. (p. 4.44). Table 4.40 shows that the highest net emigration in Fife in 1951-61 was from the predominantly coalmining areas of Lochgelly and Wemyss Districts of County and that it was extremely age-selective involving the movement of the younger elements of the working population. Table 4.41 clearly shows the accelerated decline of total population in Lochgelly District of County in the 1961-66 period and since births exceeded deaths in the area then emigration was the determining factor in this decline.¹¹¹ Local newspaper reports further emphasized these trends.¹¹² The emigration of entire families was not unusual as the local colliery closed.

".....From these statistics members will realise that the council's housing waiting list was reduced by a net total of 374 applicants.

This figure is perhaps exceptional since the number of houses vacated was strongly influenced by the closure of Bowhill Colliery. In fact in the four-month period July to October almost 180 families left Council or Scottish Special Housing Association houses in Cardenden.

.....It is to be hoped, therefore, that the former balance will eventually be restored although, generally, it is the most able workers who have elected to transfer to mining development areas in England where work is assured."¹¹³

Again the relationship of mining contraction to emigration was stressed by the Fife County Council Planning Department.

"However,....., the proposed rundown of the mining industry will increase the rate of outward migration from the county and will intensify the need for more male-employing industry, especially in Central Fife and the Levenmouth area."¹¹⁴

Overall, the available evidence indicated that the decline of the coal industry was an important contributory factor in the net migration

loss in Fife in the 1951-61 period and again in 1961-66 when the total population of the county declined. (Table 4.41).

Finally, the contraction of coalmining and more so, the speed of this contraction, had serious repercussions on planning the development of the entire county. Post-war planning in Fife has been closely associated with the trends in the coal industry. Until 1957 it was geared to the expected expansion in coalmining but from then it altered to the urgent need to attract new industry to compensate for the decline in coalmining.

The "growth period" in the coal industry in Fife was characterized by the need for planning to cater for the influx of miners in the geographical redistribution of mining population and their dependents from the declining Central Scotland Coalfield and for the smaller scale movements associated with the programme of phased rationalization within Fife. The Scottish Coalfields' Report stressed the need for the housing of miners in balanced communities provided with public and community services.¹¹⁵ The County Council developed programmes of housing, education, social services and facilities to meet these demands of an expanding coal-mining industry.¹¹⁶ These programmes were located in areas where mining was expected to flourish. The planned expansions of Oakley in West Fife, Ballingry in the north of Central Fife and Kennoway and Glenrothes New Town in East Fife were carried out in response to these requirements.¹¹⁷

The rapid decline in the coal industry from 1957 created major problems for planning in Fife. It led to a changing focus in which an increasing emphasis was placed on industrial development

and the attraction of new industry.¹¹⁸ These problems stemmed from the shrinking employment base and its associated indices of rising unemployment, slow growth of population 1951-61 and its decline 1961-66 (p. 4.47), in which the age-selective factor in migration was robbing the area of the vital elements of its population (p. 4.46). Spatially, these problems were gravest in Central Fife and Levenmouth, particularly in the former area. Every index used in this analysis indicated the magnitude of the planning problems in and around the Cowdenbeath-Lochgelly area and, in addition, its proximity to Glenrothes, its lack of "pull" on any new industry providing substantial employment and its depressing physical condition, made it unlikely that the declining trends in this central area would be altered in the immediate future. This was most disappointing since over £16 million had been spent by the local authority in this area on services, notably in the provision of housing, between 1945 and 1962 (Table 4.42).¹¹⁹ The long-term contraction in coalmining in Central Fife had been expected (p. 4.20) but the rate of decline in the 1960's had caught the local authorities unawares.

However, the effects of the rapid decline of the coal industry in Fife were not entirely disadvantageous since they focussed attention on the area and were instrumental in parts being designated as development districts in 1960 and again in 1963. This status provided aid essential to attract new industries to the county, industries which in time strengthened the economic base of the area. Again, the pull of Glenrothes New Town for new industry appeared much stronger with the closure of the ill-fated Rothes Colliery in

1962. In this somewhat paradoxical situation, the decline of coal-mining made housing available for workers for incoming industry. This proved a major attraction in the build up of industries in this particular area (Chapter VII).

REFERENCES and FOOTNOTES

¹Smith, A., (1952), op. cit., pp. 50-51 and p. 231.

²Ibid.

³Scottish Home Department, (1944), Report of the Scottish Coalfields Committee, H.M.S.O., Edinburgh, para. 176.

National Coal Board, (1950), Plan for Coal, National Coal Board, London, p. 10.

⁴Scottish Home Department, (1944), op. cit., para. 77; Table XXXIV.

⁵Great Britain, Geological Survey, (1954), Economic Geology of the Fife Coalfields; Area III; Markinch-Dysart-Leven; H.M.S.O., London, p. 67-72.

⁶Fife County Council Planning Committee, (1950), Survey Report for Area 4 (Levenmouth). Fife County Council, Cupar, p. 20.

⁷Footnote. West Fife as delimited in Map 4.03 contained two areas with distinct differences in their potential for development. The Comrie-Valleyfield represented a coal "growth area" in contrast to the Central Basin where decline was expected.

⁸Scottish Home Department, (1944), op. cit., Table XXXIV.

⁹Great Britain, Geological Survey, (1961), Economic Geology of the Fife Coalfields; Area II; Cowdenbeath and Central Fife; H.M.S.O., London, ps. 5, 35-36.

Great Britain, Geological Survey, (1931), Economic Geology of the Fife Coalfields; Area I; Dunfermline and West Fife; H.M.S.O., London, p. 3.

¹⁰Footnote. Note that, in Fife, this factor of physical dereliction was mainly applicable to the Cowdenbeath-Lochgelly area (p. 2.38), and that in its context as a deterrent to location of new industry it was very much secondary to the positive advantages of other parts of the industrial arc, notably Glenrothes, in conditioning the spatial pattern of new establishments in the area (Chapter VII).

¹¹Simpson, E.S., (1966), Coal and the Power Industries in Postwar Britain. Longmans, Green and Co. Ltd., London, pp. 170. (See especially Chapter IV, pp. 33-54, for the changing demand factor.)
National Coal Board, (1959), Revised Plan for Coal, National Coal Board, London, p. 5.

¹²Simpson, E.S., (1966) op. cit., p. 33.

¹³National Coal Board (Scottish Division), (1958), A Short History of the Scottish Coalmining Industry. National Coal Board, Edinburgh.

¹⁴Conner, A., (1962) Coal in Decline. W. Maclellan, Glasgow, p.9.

¹⁵Footnote. In places, e.g. Central Fife, extensive faulting produced a dense pattern of small units which in turn created the need for rationalization for larger scale and more efficient production.

¹⁶National Coal Board (Scottish Division), (1958), op. cit.

¹⁷Footnote. Although the limits are taken on the coast the workable coal seams extend across the Forth Estuary. These undersea areas, especially in East Fife, contain the richest reserves in Scotland and ranked high in the National Coal Board's plan for the Scottish coal industry. The area south of the outcrop of the Dunfermline Splint Coal consists of outcrops of calciferous sandstones intermingled with intrusive and extrusive igneous rocks; no coal of economic significance is found in this area.

¹⁸Footnote. This division into East, Central and West Fife is based on geology. Note that the division into East and West Fife (ref. 9) (Map 4.03) refers to the National Coal Board Areas which were effective between 1952 and 1960. Statistics for these administrative areas for 1947-1951 and 1961-67 were obtained from the National Coal Board, (Scottish Division), Edinburgh, and are used in this assessment of the coal industry in Fife.

¹⁹Great Britain, Geological Survey, (1954), op. cit., p. 6.

²⁰Ibid., p. 67.

²¹Ibid., p. 69.

²²Ibid., p. 4.

²³Noble, W., (1965), Chief Surveyor, National Coal Board, Fife Area, Personal Interview, Dysart.

Footnote. Note that these indices of thickness decrease to the north and east eg. Thickness of the Productive Coal Measures is 1,560 feet at Wemyss, 1,260 feet at Wellesley and only 1,040 feet at Durie and Leven (Scottish Home Department, (1944), op. cit., para. 53).

²⁴Noble, W., (1965), op. cit.

²⁵Fife County Council Planning Committee, (1950), op. cit.,
p. 20.

²⁶Noble, W., (1965), op. cit.

²⁷Great Britain, Geological Survey, (1961), op. cit.,
p. 74.

Footnote. This pattern of folding and faulting fragmented the Cowdenbeath workings into numerous, separate sub-areas each exploited by different collieries. This resulted in the dense pattern of mining in the area and the associated "coalmining landscape". Fife County Council Planning Committee, (1951), Survey Report for Area 6, (West Fife), Fife County Council, Cupar, p. 61. It was also responsible for the dense pattern of settlement in this area.

²⁸Great Britain, Geological Survey, (1961), op. cit., p. 31.

²⁹Ibid., p. 5.

³⁰Ibid., pp. 36-37.

³¹Footnote. At the axis of the Burntisland Anticline the strata is only 510 feet thick and contains only 20 feet of coal. At Kirkcaldy the statistics are 850 feet and 48 feet respectively. In the northern section of the Cowdenbeath Basin the Limestone Coal Series attains its maximum development in Fife. Here the coal-bearing strata is 1410 feet thick and contains 97 feet of coal. (Great Britain, Geological Survey, (1961), op. cit., p. 31).

³²Great Britain, Geological Survey, (1961), op. cit., p. 35.

³³Fife County Council Planning Committee, (1951), op. cit.,
p. 58.

³⁴Muir, C.A., (1955), The Fife Coal Company: A Short History, Cambridge University Press, Cambridge, p. 9.

³⁵Fife County Council Planning Committee, (1951), op. cit.,
p. 61.

³⁶Ibid.

³⁷Ibid., p. 56.

³⁸Ibid., p. 59.

³⁹Ibid.

⁴⁰Ibid., p. 60.

⁴¹Scottish Home Department, (1944), op. cit.

⁴²National Coal Board, (1950), op. cit.

⁴³Conner, A., (1962), op. cit., p. 10.

⁴⁴Ibid., p. 9.

⁴⁵National Coal Board, (1958), op. cit., p. 58.

⁴⁶Ibid.

Simpson, E.S., (1966), op. cit., p. 2.

⁴⁷Footnote. eg. By the end of 1946, 16% of the output of the Fife Coal Company was power-loaded and this represented more than half of the Scottish total. (Muir, C.A., (1955), op. cit., p. 10).

⁴⁸National Coal Board, (1958), op. cit., p. 85.

⁴⁹National Coal Board, (1950), op. cit.

Footnote. In Scotland, the details in the "Plan for Coal" closely followed the recommendations of the Scottish Coalfields Committee Report of 1944.

⁵⁰National Coal Board, (1959), Revised Plan for Coal, H.M.S.O., London, pp. 23.

⁵¹National Coal Board, (1950), op. cit., para. 23.

⁵²Ibid., p. 11.

⁵³Ibid.

⁵⁴Footnote. The statistical estimates for West Fife masked differences in this administration area. The central section was scheduled for decline. Growth would occur in the Comrie-Valleyfield section.

⁵⁵Footnote. This rationalization in size of units was also apparent in terms of ownership in East Fife. Eight of the ten collieries taken over by the National Coal Board in 1947 were owned by only two companies (Fife County Council Planning Committee, (1950), op. cit., p. 20).

⁵⁶Footnote. Several references allude to the up-to-date status of several units in Fife at this period and to the progressive nature of the coal companies in the area. e.g. see

Fife County Council Planning Committee, (1950), op. cit., p. 20.

Fife County Council Planning Committee, (1951), op. cit., p. 60.

Muir, C.A., (1955), op. cit., p. 90.

⁵⁷Footnote. The indices used, both individually and in combination, were number of units, production, productivity per man-shift, capital expenditures and economics of operation. Data were taken from the Annual Reports and Accounts of the National Coal Board supplemented by statistics from National Coal Board, Scottish Division, Edinburgh.

⁵⁸Fife County Council Planning Committee, (1952), Survey Report for Area 5 (Kirkcaldy). Fife County Council, Cupar, p. 60.

⁵⁹Fife County Council Planning Committee, (1950), op. cit., p. 6.

⁶⁰Footnote. e.g. Reconstruction and development at Wellesley would raise output from 450,000 to 750,000 tons per annum. (National Coal Board, (1951), Annual Reports and Accounts for 1950. H.M.S.O., London).

⁶¹Footnote. Rothes was scheduled to be in production in 1956-57 (National Coal Board (Scottish Division), East Fife Area, (1956), Rothes Colliery, National Coal Board, Edinburgh, p. 18). It was expected to employ 2,430 men by 1960 (Fife County Council Planning Committee, (1952), op. cit., p. 59.)

⁶²Fife County Council Planning Committee, (1950), op. cit., p. 21.

⁶³Ibid., p. 6.

⁶⁴National Coal Board (Scottish Division), East Fife Area, (1956), op. cit., p. 7.

⁶⁵National Coal Board (Scottish Division), East Fife Area, (1958), Seafield Colliery, National Coal Board, Kirkcaldy.

⁶⁶Footnote. Note that relative to Scotland, productivity for face-workers tended to be higher in East Fife but lower for all workers. (National Coal Board Annual Reports and Accounts 1952-57). The former reflects the favourable physical basis for mechanized mining, the latter to the numbers employed on "oncost" and/or development work, in East Fife. Obviously the industry in East Fife in this period was grossly overmanned by wage-earners other than those employed at the coal-face.

⁶⁷Footnote. By 1955 over 5,000 men had been transferred from the contracting Lanarkshire (Central) Coalfield, 1,800 or 36% of them to Fife. (Conner, A., (1962), op. cit., p. 53).

⁶⁸Fife County Council Planning Committee, (1952), op. cit., p. 60.

⁶⁹Footnote. The importance of Rothes in the phasing programme was such that in October 1953 it was decided to suspend the sinking of No. 2 shaft at 1,654 feet instead of 2,610 feet as originally planned to allow production to commence in 1957 as scheduled. (National Coal Board (Scottish Division) East Fife Area, (1956), op. cit., pp. 17-19).

⁷⁰National Coal Board (Scottish Division), East Fife Area, (1956), op. cit., p. 7.

⁷¹Ibid.

⁷²Footnote. The development of Rothes Colliery was one of failure from the commencement of shaft sinking in December, 1946 to its closure in March, 1962. As a result of water, reaching a pressure of 1000 lbs. per sq. in. at one point, the rate of shaft sinking was critically slow and was much lower than in similar projects in England and in South Africa (Conner, A., (1962), op. cit., p. 41). In order to enter production in 1957 as planned, development of coal began at the 266 fathoms level in 1956 but was eventually abandoned due to extremely troubled geological conditions including wants or wash-outs, faulting, uncertain grades, weak roofs, whin intrusions, burnt coals (Information from National Coal Board, East Fife Area; Conner, A., (1962), op. cit., p. 61.)

⁷³Footnote. While this general statement was valid, the West Fife administrative area consisted of two parts, Central Fife and Comrie-Valleyfield, each with a distinctly different potential for development. In terms of their geological basis, age and stage of development, estimated reserves and the degree of modernization, Central Fife was classed as an area of decline in the long-term plans of the National Coal Board, Comrie-Valleyfield as an area of potential and growth. (p. 420).

⁷⁴Footnote. Along with Benarty these mines were described as "typical short-term drift mines which came into existence as part of the post-1945 programme of rapid coal getting. Although a relatively small labour force is employed, the high degree of mechanization which is general in these mines results in unusually high output per manshift figures being achieved." (Fife County Council Planning Committee, (1951), op. cit., p. 62).

Windyedge was a privately-owned mine taken over by the National Coal Board in 1948. It closed in 1951. (National Coal Board (Scottish Division), Edinburgh).

⁷⁵Fife County Council Planning Committee, (1951), op. cit., p. 62.

⁷⁶Fife County Council Planning Committee, (1952), op. cit., p. 59.

⁷⁷Ibid. pp. 59-60.

⁷⁸National Coal Board (Scottish Division), Edinburgh.

⁷⁹Footnote. This contrasted with 32 productive units in 1947, 31 in 1957 and 20 in 1962. The seven units at the end of 1967 were Blairhall, Comrie, Valleyfield 1 and 2 (all in the Comrie-Valleyfield section of the coalfield), and Frances, Lochhead, Seafield and Randolph (all in East Fife). Minto Colliery, the last operative unit in Central Fife, closed in September, 1967. (National Coal Board (Scottish Division), Edinburgh).

⁸⁰Simpson, E.S., (1966), op. cit., pp. 17-18 and p. 25.

⁸¹Ibid., p. 33.

⁸²Ibid., p. 32.

⁸³Great Britain, Parliament, Parliamentary Papers (House of Commons and Command), Report of the Committee on National Policy for the Use of Fuel and Power Resources. Cmnd. 8647, 1952, para. 208, H.M.S.O., London.

Footnote. This report is often referred to as the "Ridley Report".

⁸⁴National Coal Board, (1959), op. cit., ps. 5 and 7.

⁸⁵Simpson, E.S., (1966), op. cit., p. 3.

Footnote. The "Plan for Coal (1950) estimated an annual demand of 240 m. tons by 1961-65. The "Ridley Report" (1952) considered this an underestimation by 15-25 m. tons but in "Investing in Coal" (1956) the National Coal Board held that this target was beyond the industry and re-affirmed the estimate of 1950. (National Coal Board, (1950), op. cit.; Great Britain, Parliament, Cmnd. 8647, (1952), op. cit.; National Coal Board, (1956), Investing in Coal, National Coal Board, London).

⁸⁶Footnote. In the initial stages of the post-1957 period the National Coal Board did not accept this viewpoint. See National Coal Board, (1959), op. cit., p. 5.

⁸⁷Footnote. The demand for coal fell by 25 m. tons between 1957 and 1959. (National Coal Board, (1959), op. cit., p. 7).

⁸⁸National Coal Board, (1959), op. cit., Tables II and III.

⁸⁹Ibid., p. 18.

⁹⁰Ibid.

⁹¹National Coal Board (Scottish Division), (1962), Five Year Review: 1962-1966, National Coal Board, Edinburgh.

National Coal Board (Scottish Division), (1965), Five Year Review: 1966-1970, National Coal Board, Edinburgh.

⁹²Footnote. All of these units were part of the "holding" policy in the phased rationalization of coalmining in Fife (p. 4.18). The changing economic situation from 1957 which altered the need to retain capacity speeded up these closures.

⁹³National Coal Board (Scottish Division), (1962), op. cit., p. 1.

⁹⁴Ibid.

⁹⁵National Coal Board (Scottish Division), Edinburgh.

⁹⁶Ibid.

Footnote. The closures of Wellesley and Michael Collieries were bitter disappointments. These units had been two of the key collieries in the long-term planning of the coal industry in Fife (p. 4.10).

⁹⁷Footnote. In the earlier period of operation in this phase production was also cut back by "single-shifting" some of the larger units. In the 1947-57 phase these units were "drawing" coal on two shifts. (Information from Fife County Council Planning Department.)

⁹⁸Footnote. The amalgamation of the East and West Fife administrative areas in 1960 prevented complete comparability in these statistics over the entire 1957-67 period.

⁹⁹Footnote. Bowhill included the sinking of a new shaft at Bowhill No. 3 Colliery.

¹⁰⁰Scottish Development Department, (1963), op. cit., para. 151.

¹⁰¹Footnote. Information supplied by Fife County Council Planning Department. This survey found that 13.5% of the area surveyed was in waste land. See also section on Derelict Land in Chapter VI of this thesis.

¹⁰²Noble, W., (1965), op. cit. See also Chapter VI of this thesis.

¹⁰³Fife County Council, (1959), Retrospect (1958), Fife County Council, Cupar, p. 37.

¹⁰⁴Footnote. Note that in the analysis of industrial employment in Chapter III the statistics used refer mainly to "Mining and Quarrying" (Order II of the Standard Industrial Classification (1958)). In Chapter IV the statistics refer mainly to wage-earners (eg. see Table 4.28). The data in Table 4.37 refer to total employment in the coal industry including professional and administrative staff, male and female, and those employed in National Coal Board workshops. Thus Table 4.37 provides a clearer indication of the economic consequences of the contraction in the industry.

¹⁰⁵eg. See National Coal Board (Scottish Division), (1962), op. cit., pp. 5-8.

¹⁰⁶Ibid., p. 7.

¹⁰⁷Footnote. The possibility of this situation developing was hinted at in the 1962 Review of the National Coal Board (Scottish Division)....."If the geographical and time factors involved allowed simple and direct redeployment of men from pits as they closed to continuing pits in Class 'A' the problem of re-deployment would not create serious difficulties and redundancy would be limited to men whose kind of work, e.g. surface workers, would not be readily available at class 'A' pits." (National Coal Board (Scottish Division), (1962), op. cit., p. 6.)

¹⁰⁸Footnote. Many ex-miners were absorbed into the new industries which located in Fife in the 1959-67 period. However, the contrast between the skills required in the new industries and coal-mining meant that they were employed in the more menial occupations. The assessment of their suitability and adaptability for these new occupations was mixed (Chapter VI). (Interviews of Industrialists: Fife: 1966-67).

¹⁰⁹Footnote. This was one of the less direct indices on which to assess the impact of the decline of coalmining. See also its impact on services and migration in "Colliery Closures Affect Lochgelly Shopkeepers", Dunfermline Press, Edition of October 9, 1965, Dunfermline.

¹¹⁰Footnote. Quote from personal letter from National Coal Board (Scottish Division), Edinburgh, "I am afraid that details of transfer and travel arrangements are an extremely complicated matter, the subject of constant review and change."

¹¹¹Footnote. During the 1962-66 period the number of live births in Cowdenbeath and Lochgelly Burghs exceeded deaths by 391 (See Annual Reports of Registrar-General for Scotland. 1962-66 inclusive).

¹¹²"Growth and Closures of West Fife Pits in Recent Years". Dunfermline Press, Edition of June 20, 1964, Dunfermline..... "Considerable numbers have accepted offers of employment in these (Midlands and Yorkshire) areas."

¹¹³Fife County Council, (1966), Retrospect (1965), Fife County Council, Cupar, p. 53.

¹¹⁴Ibid., p. 58.

¹¹⁵Scottish Home Department, (1944), op. cit., parts V, VII, X.

¹¹⁶Information from Fife County Council Planning Department.

¹¹⁷Footnote. For various aspects of planning associated with coalmining in Fife see Smith, P.J., (1964), Urban Site Selection in the Forth Basin. Unpublished Ph.D. Thesis, Department of Geography, University of Edinburgh, Edinburgh.

¹¹⁸Footnote. e.g. see sections on "Planning Department" in the Fife County Council issues of Retrospect (op. cit.) from 1957 onwards.

¹¹⁹Footnote. This included the construction of new housing such as the major development at Ballingry (p. 4.47). The magnitude of rehousing in this area can be gauged by the fact that in Lochgelly Burgh alone 35% of the houses occupied in 1954 had been closed or demolished by 1964 (See Smith, P.J., (1964), op. cit.).

Chapter V.

OTHER MAJOR INDUSTRIES: AN EVALUATION OF TRENDS (1959-67) AND FUTURE POTENTIAL.

This chapter of the thesis consists of conclusions derived from a detailed survey of those industries, other than coalmining, which were significant in the industrial base of Fife between 1959 and 1967. More specifically, it probes into the trends and problems in these industries to ascertain their respective strengths and weaknesses in order to assess their potential for change in the post-1967 period. As such it recognizes the distinct need for a detailed analysis of each principal industry in evaluating the potential of the region for growth, a fact admitted by the Toothill Report but held to be beyond the scope of that inquiry.¹ Further, it recognizes that the economic, and the associated social, status of the county depends on the cumulative effects of the trends in the major industries in the industrial structure. In this aspect, one must stress "cumulative effects" since the survey verified a basic premise of the growth area concept, namely that some sectors were in decline while others were expanding at rates which had not been entirely expected (p. 3.09).

The need for a detailed survey and analysis of the

principal industries in Fife was evident from the analysis of industrial employment (Chapter III). Firstly, this analysis identified the major industry groups and industries in the industrial structure of Fife during the 1959-67 period as mining and quarrying with subsidiary shipbuilding and marine engineering, paper, printing and publishing, other manufacturing industries, textiles and clothing, and, as a result of rapid expansion from 1959, engineering and electrical goods. (p. 3.07). Together these groups employed 85% of the total insured population in industry in 1967. (p. 3.08). In addition, the analysis of industrial employment indicated clearly that most of these industrial groups were themselves specialized in a few industries, namely coalmining in mining and quarrying, linoleum and leather cloth in other manufacturing industries, paper and board in paper, printing and publishing, shipbuilding and ship repairing in shipbuilding and marine engineering and, to a lesser degree, weaving in textiles and clothing.² (p. 3.10). These represent the industry groups and industries studied in depth in this chapter.

Secondly, the changes experienced in these principal industries between 1959-67 further emphasized the need for detailed study. Overall, the cumulative changes in the various major industries determined the decline in the county's industrial base during the period (p. 3.08) but more significant in the evaluation of trends as an indicator of future potential for growth, the direction and magnitude of these changes varied considerably from industry to industry in a range from marked contraction in coalmining and linoleum and leather cloth to substantial, rapid growth

in engineering and electronics. (p. 3.12). The introduction of new establishments into Fife was the principal reason for the expansion experienced in the growth sectors of the industrial base. (p. 3.66). Equally significant in this context of variation in changes in industry in the county, the trends in some of the industries prominent in the industrial structure did not conform to those at the Scottish and United Kingdom levels; this was particularly relevant in shipbuilding and marine engineering, textiles and clothing, and in other manufacturing industries. (p. 3.11). Obviously, these variations required explanation.

Thirdly, the detailed study of the principal industries in Fife was essential to ascertain the causal factors determining the trends in these industries in the 1959-67 period. It was obvious that the symptoms of decline and/or slow growth in the leading industries in the industrial structure constituted a problem in the development of the county, but any positive approach to solve this problem demanded insight into the causes of decline or slow growth. Only a detailed study of the industries involved could provide this insight and clarify the elements in their operation to be encouraged and the obstacles to be removed to facilitate expansion where this was considered possible and desirable. Only thus could one assess the potential of the various industries for future expansion.

Fourthly, a detailed survey was necessary to explain spatial variations in the trends in industries within Fife, variations which were partly responsible for the modification of the pattern of industrial distribution in the county, notably the emergence

of Kirkcaldy-Glenrothes as the undisputed growth-pole in the area and the marked decline in status of Cowdenbeath-Burntisland (p.3.62). The locational pattern established by new industries introduced into Fife and the rapid decline of coalmining were significant in this modification of the spatial distribution of industry.

Thus, overall, it was obvious that "in-depth" studies of the various industries significant in the industrial structure was essential to describe and analyze the changes experienced in Fife between 1959 and 1967. However, it was equally evident that one had to probe beyond mere description and analysis by explaining these changes in industry in the light of the causal factors which determined the trends. Only thus could the future potential of the county in industrial development be assessed. As expected, these causal factors differed from industry to industry as a result of the variation in type and value of product, in the degree of market demand and competition, in the availability and suitability of labour, in the structure of the industry concerned and in the effects posed by operating in a geographically-marginal location. The coalmining industry has been subjected to such detailed treatment (Chapter IV). It remains to assess the other major industries in the county's industrial structure in a similar manner.

The Linoleum and Leather Cloth Industry.

The linoleum and leather cloth industry represented one of the older, declining industries in the industrial structure of Fife. Its significance to this thesis lay in its status in that

structure and in its degree of contraction in the period of study. Spatially, its concentrated pattern of distribution in Scotland, and more particularly in the present context, in Fife, indicated the "areas of stress" associated with its decline. Overall, the indices of employment, unemployment and production ranked it as a declining industry in which the rate of decline between 1959 and 1967 was crucial for Fife. In this, it had become a problem in which the failure to adapt to rapidly changing market demands had rendered its future open to question.

Linoleum and leather cloth was a major employer in Fife industry between 1959 and 1967 (p. 3.10: Table 3.05) although its status in the industrial structure declined during this period.³ It was important in both the male and female sectors (p. 3.08: Table 3.02). The degree of dependence on this industry proved a weakness in the county's industrial structure in the 1959-67 period since, along with coalmining, the contraction in linoleum and leather cloth was responsible for the overall decline in the industrial base of Fife. (p. 3.12). Employment fell by over 48% between 1959 and 1967 (Table 3.06) while unemployment increased to a maximum in 1964 before declining as redundant employees were absorbed into other sectors and/or natural wastage took effect.⁴ (Table 5.01).

The contraction in employment in this industry reflected the decline in production as market demand altered to products other than linoleum. In Fife, production was overspecialized in linoleum and felt base with a late and limited changeover to vinyls in the latter part of the period under review.⁵ Output of linoleum

and felt base declined rapidly between 1959 and 1967 with contraction higher in linoleum production. (Table 5.02).⁶

Spatially, the impact of this decline was effective at the county level but was especially significant in the Kirkcaldy area. This industry in Fife was highly concentrated in Kirkcaldy with a secondary emphasis in Newburgh. Decline was apparent in both areas but was numerically larger in the former (Table 5.03: Map 5.01); unemployment was also higher in Kirkcaldy (Table 5.01).⁷

Thus overall, the indications in the linoleum and leather cloth industry in Fife were those of decline. In this, the indices used above and their trends represented the symptoms of the problem but the basic underlying cause of this decline lay in the increasingly fierce competition in market as the demand for floor-coverings altered drastically from linoleum and felt base products to vinyls and carpets. The firms engaged in the industry in Fife were ill-equipped to meet this competition. Their geographical marginality to markets and raw materials, their deficiencies in adequate plant and building facilities and their apparent lack of adaptation and foresight to counter the changing market conditions affected their economic competitiveness in market. However, against these disadvantages one had to evaluate the assets of the inertia factors of tradition, labour force and services associated with the industry in the county. The future of this industry in Fife depended on the balance between its disadvantages and these assets.

The advantages of linoleum and leather cloth in Fife were products of its historical development in the county. Its

early origins lay in the linen industry of the Kirkcaldy area with progressive expansions by the spawning of new firms from this source and by a series of amalgamations.⁸ By 1890 production was centred in two firms in Kirkcaldy and one in Newburgh, a situation which continued until 1964. In time, the industry in Fife expanded to a world-wide concern with subsidiaries in North America, Australia, France and Germany as well as interests in other United Kingdom companies.⁹ This evolution created a geographical inertia, (in capital plant, equipment and buildings, in the build up of a trained labour force and associated services, and in the establishment of a tradition for quality products), which has prolonged the life of the industry in Fife. However, with increasing competition in a declining market, this inertia factor did not prevent the closure of one major producer in Kirkcaldy nor the intentions of the other to consolidate productive capacity in England. The latter was thwarted only by government Industrial Development Certificate legislation and by the positive incentives available in the Kirkcaldy development district.¹⁰ Overall, it is this writer's opinion that the balance in the future of this industry in Fife lay with the disadvantages, only the intervention of government preventing its virtual demise in the county.

The future prospects of the linoleum and leather cloth industry in Fife will depend greatly on its ability to change and to overcome the difficulties posed by size and a geographical location marginal to the centres of raw materials and, more so, of market. Declining demand for linoleum and felt base initiated the intense competition characteristic of the industry. The types

of products have altered rapidly over a relatively short period of time making adaptation to changing conditions essential for survival.¹¹

The direction and magnitude of the changes in market demand are summarized in Table 5.02. Several significant trends which could prove decisive for this industry in Fife were obvious from these statistics. Firstly, they indicated clearly the weakness of over-specialization in linoleum and felt base both of which contracted rapidly in Scotland and in the United Kingdom. In both products decline was proportionately greater in the Scottish industry whose percentage shares of total sales fell during the period. Secondly, the data showed the rapid increase in demand for vinyl products to the detriment of linoleum and felt base in the latter part of the period. Scottish participation in this growth sector of the industry was negligible and lagged far behind other areas in the United Kingdom. Thirdly, the growing trend to carpets in floorcoverings again emphasized production in areas other than Scotland and with the expectations of continued and accelerated expansion in this line of production,¹² this constituted a major shortcoming in the weight placed on linoleum and felt base products in Scotland. Fourthly, the statistics indicated clearly that this industry in Scotland suffered from a decided lack of adaptation to meet changing market trends. It lagged behind the rest of the country in changing to newer products, emphasizing linoleum when production in the United Kingdom stressed felt base (1955-59) and moving towards felt base as the United Kingdom production emphasized vinyls and carpets (1961-67). This lack of

adaptation and foresight affected the economic competitiveness of the Scottish industry in market and pointed the way towards eventual decline unless significant changes were effected.

Overall, the specialization of production on linoleum and felt-base in Fife and the declining status of these products in the market greatly increased competition in the market. The decline in the domestic market was most pronounced, that in contract floorings for institutions and offices more stable.¹³ Competition in overseas markets, which was about 20% of production, was rising.¹⁴ Geographically, the overseas market for Fife output was world-wide while the home market was throughout the United Kingdom but with an emphasis on London and the Midlands of England.¹⁵

In addition to the apparent lack of foresight and adaptation in declining market demands the competitive position of the Fife producers was also affected by the marginal location of the county relative to both raw materials and market and by the general inadequacy of plant and plant layout as a result of age. The need to "import" the raw material inputs, mainly linseed oil from overseas and organic and inorganic fillers most of which came from England, and to "export" the finished products to the overseas and, more so, the principal English markets in the south increased the costs of production to Fife producers. Despite using their own transport, the transport costs of one company in supplying the home market were approximately 5% to 6% of their annual turnover.¹⁶ Both companies interviewed agreed that they suffered from their marginal locations in the intense competition in marketing their products.¹⁷ The need to establish and maintain sales offices and storage

facilities in London further affected the economic competitiveness of the Fife companies in this industry.

The competitive position of the Fife producers in the declining market was also affected by the age of their plant and building facilities. The machinery used in the industry in the production of linoleum and felt base was generally old, dating to the pre-1939 period and earlier but more important in the present context, the buildings and their layout were not conducive to modern, efficient production. Complete integration of process was not in operation at Newburgh.¹⁸ Production at Kirkcaldy was more advanced but was hampered by the age and layout of buildings engaged in the various processes, (Plates 5.01 - 5.02), a situation which prevented the full benefits of internal, vertical linkage to be realized.

Attempts have been made to rectify the deficiencies in production in Fife but they have not prevented the continued decline of the industry to 1967. The firms concerned have entered vinyl production but only to a limited degree. Diversification of production has been tried but with no great success. In this, such developments of better quality floorcoverings such as "Armourtile" and "Armourflor" by Nairn's,¹⁹ "Pedex" by Tayside Floorcoverings, have been significant but have not prevented the continued decline.²⁰ Experiments with "databoards" at Newburgh have achieved only moderate success.²¹ Overall, further diversification of products, particularly the entry into the "growth sectors" in floorcoverings is essential for survival. Without this changeover the increased emphasis on sales promotion, colours and designs would be misplaced and would

not realize its full potential.²²

The problems associated with such a change to different products have been outlined by the "Toothill Report".²³ These difficulties were apparent in the linoleum and leather cloth industry in Fife. In addition, the inefficiencies imposed by old plant and buildings and the high capital outlay to rectify this²⁴ and to manufacture new products indicated the need for a larger scale of operation to gain scale economies sufficient to offset the investment. None of the Fife companies was able to meet such an outlay. Amalgamation and merger with other concerns was essential to be competitive in the shrinking market conditions. Nairn's of Kirkcaldy were involved in a merger with Williamson of Lancaster in 1963 and, at the time of interview in November 1966, Tayside Floorcoverings were the subject of a takeover bid by British Steel Construction (Birmingham) Ltd.²⁴

Amalgamations and mergers create significant advantages since they inevitably result in the rationalization of production and productive facilities, of investment, of research and development, of marketing and of general administration. The economies of scale from this rationalization render the producer more productive and efficient and so more competitive in the market. This is expected in the linoleum and leather cloth industry in Fife. However, the reorganization and rationalization of production and productive capacity implies that location will be at the point of maximum or assured returns, all other aspects being equal. It is this writer's opinion that the capacity of Nairn-Williamson would have been expanded at Lancaster rather than Kirkcaldy but for

government policies in industrial location²⁵ which thus saved the floorcoverings industry in Fife from further decline. Similarly, the proposed take-over of Tayside Floorcoverings, if effected, does not guarantee continued production at Newburgh.

Overall, the future of this industry in Fife was salvaged by the proposed concentration of vinyl production by Nairn-Williamson at Kirkcaldy. This would reverse the trend of decline in this area as the benefits of amalgamation and greater concentration on a growth sector of the industry were realized. The future prospects of production at Newburgh were less optimistic. Changing market conditions underlined the problems of size and marginal location which were major obstacles to continued operation at that location. Using employment as an indicator the trends suggested a reversal of the decline at Kirkcaldy to a slight increase and a further reduction, with the possibility of closure, at Newburgh.

The Paper and Board Industry.

The paper and board industry was established in Fife in the early nineteenth century.²⁶ It has utilized the locational advantages of a plentiful supply of clean water, proximity to ports for the import of raw materials, nearness to abundant coal supplies from the Fife Coalfield and the adequate supply of labour to build up an important sector in Fife's industrial structure. In the context of this thesis it has been assessed as a stable to slow growth activity whose future will depend on its ability to cope with increasing competition in a market indicating expansion.²⁷

In this situation, the degree of specialization in high quality products operating under an overall umbrella of product diversification, together with an apparent readiness to adapt to methods giving higher efficiency in production, and human resolution to succeed despite obstacles, are significant assets which augur well for the future of the industry in Fife. These assets must be weighed against the problems emanating from geographical marginality and growing competition from English producers and from the large-scale, integrated production from overseas, particularly Scandinavian, units. Overall, this industry was one of those of slow growth which were in part responsible for the economic malaise of the peripheral regions of the United Kingdom. It was essential to retain its stability while injecting new, growth-type activities into the industrial structure. As such it represented a key industry in Fife in the 1959-67 period.

The manufacture of paper and board was the principal industry in the paper, printing and publishing sector in Fife (p. 3.10). The status of this industry group in the county industrial structure has been indicated in Table 3.01. Its rising status between 1959 and 1967 was the result of slow growth in a contracting industrial base (Table 3.03); its contribution to total and male and female employment was significant (Table 3.02); growth was relevant in both the male and female sectors, especially in the former (Table 3.04). In terms of future development in Fife this slow growth was crucial in that it helped partially offset the decline experienced in coalmining and linoleum and leather cloth manufacturing in the 1959-67 period.

The degree to which paper, printing and publishing was dependent on paper and board is shown in Table 5.04. This table makes it apparent that the trends in the larger industry group were dictated by this industry. Table 5.05 and Map 5.02 show the distribution and trends in employment in the paper and board industry in Fife between 1959 and 1967. Concentration was obvious in the Leslie-Glenrothes-Markinch area with secondary locations at Inverkeithing and Guardbridge. In the overall slow growth in employment, increases at Kirkcaldy-Glenrothes and Inverkeithing offset minor declines at Guardbridge and Leven.

The lack of available statistics on production in Fife²⁹ made it necessary to use output data for Scotland and the United Kingdom as indicators of the trends in the industry in Fife. This was accepted as a valid approximation since employment in the manufacture of paper and board in Fife compared with that in Scotland was relatively constant throughout the period as was that of Scotland with the United Kingdom. (Table 5.06). Further, the Scottish contribution to the production of paper and board in the United Kingdom was also relatively stable (Table 5.07). These indicators suggested that the general trends at the national and Scottish levels were applicable to Fife in the 1959-67 period. Interviews substantiated this assumption.

The analysis of Tables 5.06 and 5.07 clearly indicated trends which summarized both the strengths and the problems of the paper and board industry in both Scotland and the United Kingdom. The steady growth in output from 1959 was levelling out in the face of increasing competition from large-scale integrated producers from

overseas, notably from Scandinavia. In this, the progressive reduction of protective tariffs, removed completely at the start of 1967, under the European Free Trade Association agreements was a critical factor. However, comparison of trends in employment with those of production showed the growing efficiency within the industry in terms of rising productivity. Between 1959 and 1967 employment in paper and board in Scotland rose by only 5% but production increased by 27%. The statistics for the United Kingdom were 7% and 24% respectively. The continuation of this trend to higher productivity was essential if the paper and board industry in the United Kingdom was to retain its status as competition increased in the market.

Any evaluation of the future status of the paper and board industry in Fife had to be made in the light of trends at the national and international level. In the period under study the latter was of crucial significance. World and, more so, European trends were important to the British paper and board industry. Overall, the future of the industry in Fife was inextricably linked to its ability to compete in the market, particularly in the home market, against English and overseas competitors. The fact that this was an expanding market helped reduce some of the intensity in this growing competition. However, it did not remove the urgent necessity for greater efficiency in Scottish and Fife production.

In the 1959-67 period the British paper and board industry faced severe competition from overseas, particularly Scandinavian, producers. This competition has increased in time and will be most acute from 1967 onwards with the final removal of tariff protections

under European Free Trade Association agreements. These tariff regulations have been important to British producers in the home market and have enabled them to offset the natural advantages in production of their competitors. The nature and assessment of this competition have been outlined in a National Economic Development Council report,³⁰ the general findings of which have been substantiated by the trends in the industry.

The overwhelming importance of the large home market for paper and board³¹ to the British producer is shown in Table 5.08. Approximately 97%-98% of production was consumed by this market; this represented about 75% of home consumption, the remainder consisting of imports. The relative consistency in these percentages in a situation of rising consumption indicated that the home producer was holding his share of the market despite increasing competition from abroad. This was all the more commendable since the overseas producers possessed significant advantages in this competition,³² the ready accessibility to abundant, cheap raw materials, mainly pulp-wood, enabling a high degree of integrated, cost-saving production denied to the British producer, while similar cheap access to highly efficient hydro-electric power furnished further savings. Together these assets had been estimated to give Scandinavian producers a 10% margin in production costs over their United Kingdom competitors.³³

The above advantages of overseas producers in competition in the United Kingdom market were in part offset by the proximity of British producers to this market and by tariff regulations. The latter were of the order of 14%-16-2/3% in the initial stages of

the 1959-67 period³⁴ but were progressively reduced³⁵ to the level of complete removal by 1967 under European Free Trade Association agreements. This would affect the competitive position of British producers after this date. In addition, the expected removal of a 10% import surcharge which was effective in 1966 would also increase the competition from Scandinavian sources.³⁶ The entire situation was further complicated by the tariff protection imposed by the European Economic Community which channeled Scandinavian production away from "Common Market" consumers into the lucrative British market.³⁷

The tightening conditions in the home market, in which the above changes would increase imports to satisfy the expected continued rise in demand, were unlikely to be relieved by any substantial expansion in exports. Exports of home-produced paper and board constituted a small proportion of total production (Table 5.08). Trends in this sector indicated only a small increase. The overall situation of world over-capacity, together with moves towards economic self-sufficiency of importing countries and the increasing competition from large, integrated producers,³⁸ indicated that British exports of paper and board would not rise to any great extent.³⁹

These changing market conditions carried specific implications for the British producer. Despite rising consumption, a slower rate of growth could be expected with overseas competitors absorbing a larger share of the growth in market. To retain a share of the market, increased efficiency was essential to meet the growing competition. In this it would be necessary to introduce new technical developments in processing and in modifying and improving machinery,

developments such as the use of the "Inverform" system of production, the electronic inspection of papers and boards,⁴⁰ the introduction of mechanized handling and sorting.⁴¹ This will inevitably lead to increased capital investment in what is a capital-intensive industry in which inertia in plant and equipment is a vital factor. Such capital investment will be available only to larger firms and groups making amalgamation and merger in an overall rationalization of productive capacity a distinct probability.⁴² Increasing specialization in better quality papers and boards was to be expected.

The future of the paper and board industry in Fife had to be evaluated against this background. In addition to overseas competition, Fife production had also to be competitive with English producers. In this, the marginal location of the county relative to its principal markets was an obstacle to be overcome. Indications existed that not only were the Fife producers aware of the difficulties in competition but they were taking measures to combat it. Production had the advantages of specialization, but a specialization in an overall structure of diversification of products; products were wide-ranging but the emphasis was on higher quality goods and on growth lines within the industry; modernization and modification of existing machinery and the installation of new machinery was being carried out; transportation was being "arranged" to minimize transfer costs. All of these indicators signified strength in this industry in Fife.⁴³ In addition, the impression gained in interviews was that there existed a strong resolve to meet the challenge of increased competition and to continue successful operation at the Fife location.

This overall assessment of apparent strength in the paper and board industry in Fife was in part the result of the products manufactured. A wide range of both commercial and industrial papers were produced, (Appendix 5.01), a diversification which enabled the industry to cushion the impact of competition or decline in any one sector.⁴⁴ However, within this pattern of diversification the advantages of specialization were not ignored since each mill concentrated on a particular line of production.⁴⁵ (Appendix 5.01). Two specialized in industrial-technical papers, three in papers for writing and printing, two of these three in high quality papers and boards. The remaining two were more diverse but were placing an increasing emphasis on wrapping papers and paper bags and sacks which represented growth sectors in this industry.⁴⁶

In addition to this specialization within an overall structure of diversification the paper and board industry in Fife was centred in quality products and in growth sectors in the industry. The greatest pressures of imports were in commercial papers, particularly in the lower quality writing and printing papers.⁴⁷ Production in this line in Fife was concentrated in high quality products which could withstand this competition.⁴⁸ The county was also significantly involved in expanding lines in industrial and special purpose papers and in wrapping papers, bags and sacks.⁴⁹ (Table 5.09). This emphasis in quality products and in growth lines in the industry provided further strength in the increasing market competition.

The assessment of strength in the paper and board industry in Fife was also based on measures adopted to meet growing com-

petition, measures which aimed at raising the efficiency of both production and marketing. The need for modern, efficient machinery to increase productivity was accepted and, as a result, production in Fife was based on machines dating mainly to the post-1945 period. Several examples exist to underline this progressive trend; "The widest twin-wire machine in the world is being put down in a Fife mill;"⁵⁰ a rebuilt machine from England to utilize the "Inverform" method was being installed at Leslie;⁵¹ machinery used by Tullis-Russell was "mainly of the post-1945 vintage";⁵² Smith-Anderson had altered and modernized all machinery since 1945;⁵³ one firm was engaged in a £3 m. extension programme to house a 'new machine' from the United States, a machine to enable them to enter a new line of production.⁵⁴ In this investment in modernization, the industry reaped the benefits of the area's development district status and each firm interviewed commended this financial aid as helpful in meeting competition.

The situation of rising competition and of marginal location implied the necessity of efficient organization of marketing. The Fife producers had been building up and consolidating existing markets. Most had sales offices and distribution depots in England which was the principal market.⁵⁵ Transport costs were reduced to a minimum by efficient organization. Most was by road with "return cargoes" a feature; one firm operated and maintained their own vehicles, others used local contractors to haul their products and/or to run and service their vehicles.

Another aspect, and one which could have far-reaching, favourable consequences in the increasing competition, was the

growth in research and development in the industry in Fife.

Caldwell's relied on "group research" within the overall organization⁵⁶ and Tullis-Russell was building up this sector of its operation.⁵⁷

Such trends were essential to keep to the forefront of developments.

To meet the growing competition from overseas it was expected that the need for capital investment in the British paper and board industry would result in amalgamations and mergers and in the rationalization of productive capacity since only the larger firms and groups would be able to provide the capital outlay envisaged. (p. 5.17). In Fife, three of the five companies were members of larger groups, two were private concerns but contrary to the expected trends, the largest capital investment in plant and machinery was expended by the private firms.⁵⁸ From interviews it was apparent that these firms had more say in their future than the others where "group" decisions predominated. The overall impression gained was that while amalgamation and merger can create economies in production, marketing and administration, in the long-term they might not be beneficial to the continued operation in Fife locations. In this, the "costs of marginal location" would operate against the Scottish firms in the virtually inevitable rationalization of production.⁵⁹ Again, the apparent resolution of the privately-owned concerns to succeed in the growing competition was a factor relevant in any evaluation of the future of this industry in Fife. Overall, in the short term it appeared that any further amalgamation or merger was unlikely but that it might be necessary in the future. In this, the degree of competition in market would be significant.

Geographical marginality represented a major obstacle in

the production of paper and board in Fife.⁶⁰ Deficiencies in raw materials, virtually all of which had to be imported, and, more so, in the lack of a sizable, local (Scottish) market placed it at a disadvantage relative to competitors in England located nearer market. These problems of marginal location were magnified in the situation of growing competition.

The raw materials used in the industry in Fife were mainly wood-pulp and esparto grass or esparto pulp, with secondary supplies of rags, waste paper, china clay and chemicals.⁶¹ The emphasis was on wood-pulp with a decreasing use of esparto.⁶² The use of rags and/or waste paper varied from firm to firm depending on the type of product.⁶³ With the exception of some waste paper all the above raw materials were imported, woodpulp mainly from Scandinavia with secondary sources in North America, Russia and Swaziland, raw esparto grass from North Africa and esparto pulp from Lancashire, china clay from South-West England, chemicals from England, rags from Belgium and waste paper from England. Extensive use was made of sea transport from these sources (including china clay from Cornwall) to ports on the Forth Estuary and thence by road or rail to the respective mills. The costs of assembly of raw materials were held to be only marginally higher relative to a location in South England.⁶⁴

The marginal location of Fife producers was more significant in relation to market than to raw materials since the producer bore the costs of distribution. In the situation of growing competition and narrowing profit margins this could prove to be a crucial factor in the continued operation of this industry in Fife.

The market for Fife paper and board products was principally in London and South-East England with a secondary emphasis in the Midlands and Southern Lancashire.⁶⁵ While the costs of transporting to market and of the need to maintain sales offices and depots increased the costs of production to the Fife producer relative to a competitor nearer market, the general opinion was that this was not a new situation. Transport had been organized to minimize transfer costs (p. 5.20). These costs had been absorbed into total costs of production in the past and had to be weighed against other inputs in the economic operation of the industry. Overall, it is this writer's opinion that in the light of increasing competition the firms in paper and board in Fife must strive to keep transfer costs at a minimum by the continued efficiency of organization of sales and transport, by savings in other aspects of production to offset the additional costs of marginal location and by concentration on higher-priced, quality products to reduce the percentage costs of transport relative to total production costs.

An additional factor which could be attributed to geographical marginality and which affected the competitive status of Fife producers lay in the differential in costs of power supplies between Scotland and England. Coal from the Fife Coalfield for the production of steam and the generation of electricity was the principal power source in this industry in Fife.⁶⁶ Its higher cost in Scotland was held to be a factor which aggravated the marginal location of the area. However, the status of the industry as a major coal user in Fife had enabled it to drive a satisfactory bargain and so reduce this price differential.⁶⁷

Against the disadvantages imposed by marginality, location in Fife possessed certain advantages which were assets in competition. The area had a plentiful supply of good quality water essential in paper manufacturing, an asset which existed despite minor problems of rising chemical content from the use of agricultural fertilizers and increasing worries of effluent disposal.⁶⁸ Again, the deep-rooted resolve to succeed, which was apparent in interviews and observable in the use made of the time period given to the home producer to adjust to the reductions in tariff protection under European Free Trade Association agreements, was an asset to consider in the evaluation of the industry's future in Fife.

A third significant advantage lay in the availability of labour which was more plentiful relative to competitors in Southern England. This asset was relevant to most Scottish producers of paper and board.⁶⁹ However, labour trends in Fife suggested that this situation was in the process of change and that it could become a matter of concern in the industry in the not too distant future. This evaluation had to consider both the availability and the suitability of the labour force in the area. Difficulties were graver in the supply of skilled and semi-skilled male labour and in the female sector relative to the male.

In the male sector, the firms interviewed reported a growing shortage of skilled and semi-skilled labour which was aggravated by a decline in the suitability of school-leavers to train in the industry. This decline in quality of labour intake could become a major problem in the future. As faster, more sophisticated machinery is introduced the need for recruits with a

high level of basic intelligence and education will increase. The situation was further aggravated by the growing competition for labour as new industries located in the area and by emigration. Unskilled male labour was plentiful but was not particularly high in quality. Turnover was confined to the unskilled sector but like absenteeism presented no major problem at the time of survey.

Female employment in the paper and board industry was classed as unskilled. In terms of availability and suitability it presented a much graver problem to the industry than male labour.⁷⁰ The introduction of new female-employing industries into Fife was providing "more suitable" employment for females⁷¹ and it was becoming increasingly difficult to recruit females into paper and board manufacturing.⁷² The problems of availability of labour affected its suitability. Turnover and absenteeism were rising; it was becoming exceedingly difficult to obtain volunteers to work overtime which was often essential in rush orders; recruits to the industry were of a much lower quality than in previous periods.

While these problems of labour in the industry were important at the local level there was no evidence to suggest that they were worse than at other locations in the United Kingdom. The shortage of skilled labour was relevant in most industries throughout the entire country⁷³ and in general terms, the availability of labour was much more acute in the polarized zone of South England and the Midlands (p. 2.21). Thus, in relative terms, the labour situation in the paper and board industry in Fife at the time of interview could be assessed as an asset. In this, the increase in mechanization and the expected slower rate of growth would help decrease the

problem of labour but in the meantime it was essential that the firms involved strove to attract better quality labour, especially in those entering the labour market for the first time.

In overall summary, the manufacture of paper and board represented a key industry in Fife. It was an important employer of both male and female labour; its stability was crucial to help ameliorate the problems of decline in the county's industrial base. The future of the industry in Fife was tied closely to trends at both the national and international levels. It was especially vulnerable as a result of trends in Europe. In this, the tariff protection imposed by the European Economic Community, the removal of tariffs under European Free Trade Association agreements and of the temporary import surcharge effective until the end of 1966 would increase further the rising competition in the large home market, competition mainly from the large-scale, integrated producers from Scandinavia. This increasing competition, although tempered by rising consumption, was the most critical problem facing the British paper and board industry. Producers in Fife were affected not only by this competition from overseas but also from competitors in England located nearer market. Against this background this writer assessed the paper and board industry as one of comparative strength. It was aware of the growing competition and was preparing to meet the challenge; production was specialized in quality products and in growth lines, specialized but operating under a canopy of diversification; it had used the time given by the gradual removal of tariff protection to modernize machinery, to install new machinery and to consolidate and build up

its markets; it had paid attention to the organization of its sales and transport arrangements to reduce the costs of geographical marginality; it had, on the whole, strengthened its resolve to continue successful operation in Fife despite difficulties. Overall it possessed and was utilizing the relative advantages of available labour and available and suitable water supplies to meet the growing competition. In general terms, it is this writer's expectation that production will rise slowly as a result of increased efficiency from organization and the benefits of mechanization. Employment will remain relatively stable.

The Shipbuilding and Marine Engineering Industry.

The shipbuilding and marine engineering industry in Fife evolved from the traditional boatbuilding industry⁷⁴, associated with areas with a sea focus. Its status was significant only in the local county setting as in no way did it compare with the size and importance of production on Clydeside. Production in Fife was centred on shipbuilding and ship repairing with only a limited involvement in marine engineering. It was concentrated in the Royal Naval Dockyard at Rosyth with a secondary location at Burntisland.⁷⁵ (Map 5.03). Although trends in Fife between 1959 and 1967 suggested a degree of stability, the future of the industry was open to question. It depended on the ability of the privately-owned yard at Burntisland to compete in a rapidly declining market and on the continuation of the artificial situation created by government dockyard policies at Rosyth. Obvious doubts existed in the former but these were partly offset by apparent stability

in the latter. On the whole, little growth was expected in the foreseeable future while decline was a distinct possibility.

Shipbuilding and marine engineering represented a major sector in Fife's industrial structure throughout the 1959-67 period. It employed a significant percentage of the county's industrial population (p. 3.07) and was especially important as a male-employing industry (p. 3.08). Slow growth between 1959 and 1967 in a declining industrial base gave it a rising status during this period. (p. 3.09). This slow growth helped ameliorate the deterioration of the county's industrial base as a result of decline in coalmining and linoleum (p. 3.09) and provided time to allow the introduction of new industries into the employment structure.

In terms of location, production was highly concentrated. The naval dockyard at Rosyth was the largest employer but in the rest of Fife only Burntisland was important (Table 5.10). Trends at these centres between 1959 and 1967 were instructive in the assessment of the future of the industry in Fife, stability and overall slow growth at Rosyth contrasting with the fluctuations and overall decline at Burntisland. The impact of government participation and cushioning in the former and the need to compete in a difficult market in the latter were major causal factors in these contrasts in trends.

Despite the slow growth trend recorded in this industry in Fife in the period of study, trends at both the Scottish and United Kingdom levels did not favour continued growth. Indices of employment and production signified a rapidly declining industry (Table 3.09) and while local conditions had protected the industry

in Fife to 1966-67, it is this writer's opinion that the general decline would eventually be effective in the county and would be especially relevant at Burntisland although a tightening situation at Rosyth could not be ruled out.

Shipbuilding and marine engineering at Rosyth was based on ship repairing and refitting with a lesser emphasis on marine engineering and on a research and development section.⁷⁶ This emphasis on repair work, and particularly repair work guaranteed by government, created security at this location of the industry in Fife. Relative to new construction, the repairing of ships, though demand can fluctuate considerably, tends to be much more stable.⁷⁷ This degree of stability was enhanced by the removal of doubts of continued operation in the immediate post-1945 period by an Admiralty policy to spread any cutback through all naval dockyards.⁷⁸ This and the government commitment to aid industries in designated development districts virtually assured the future of the industry at Rosyth. However, with the reduction of naval capacity a possible slight contraction in the long term could not be overlooked.

The situation at Burntisland differed radically from that at Rosyth, the yard being open to a high degree of competition for which it was ill-equipped. As such it was subject to trends in shipbuilding at the national and international levels. The shipbuilding industry has always suffered from fluctuating market demands⁷⁹ and in the present context two distinct demand phases were apparent from 1945. The boom period from 1945, as a result of the need to replace capacity destroyed under wartime conditions, was

prolonged by the Korean war⁸⁰ before petering out by 1957-58. From 1958 the situation altered to one of world over-capacity in shipping freight, a situation readily apparent in the 'sixties.⁸¹

British shipbuilders operated at a disadvantage in the rising competition from this overcapacity. Age and tradition with their impact on site layout, on all levels of labour and labour practices and relations, and on attitudes towards changing techniques, were significant factors which affected their competitive position in market. In addition, government policies relative to those of other nations tended to be detrimental to the home producer; this was obvious in the industry in the mid-'sixties.

Changing technology and techniques have always been important in the shipbuilding industry. Their significance as expressed in the statement that

"The history of shipbuilding can be written in terms of the technical changes which have transformed the small sailing-ship into a highly powered ship of steel."⁸²

.....remains valid today in the growth of standardization and pre-fabrication in the industry. The tardiness of United Kingdom producers to adopt these techniques in the immediate post-1945 period was a major causal factor in the weakening of the competitive status of the industry.⁸³ The advent of the all-welded ship provides an example of new techniques which utilize standardization and prefabrication methods. It has had tremendous repercussions on the industry throughout the world⁸⁴ and has been a major factor in the relative decline in the status of British shipbuilding. Its ready acceptance by overseas shipbuilders, especially in Sweden and Japan, contrasted markedly with the overall reluctance and

tardiness of the British producer.

The standardization and prefabrication techniques used in welded ship construction created significant savings in design, in the elimination of "teething troubles" associated with custom-built vessels, in scale of operation and, perhaps most crucial of all, in labour costs which represent a high proportion of total costs in the industry.⁸⁵ It enabled the use of semi-skilled labour and broke what had been almost a monopoly of skilled labour enjoyed by United Kingdom producers.

Standardization and prefabrication also carried specific implications in the organization of physical site layout and of labour. Sites had to be larger to accommodate covered sheds for the fabrication of sections and for storage. They had to be organized spatially to facilitate maximum efficiency in flow-through methods of production and had to be equipped with automated plant and machinery and with larger cranes to move the prefabricated sections into place. In this, the United Kingdom producer was at a disadvantage. The United Kingdom yards were generally older, smaller and often occupied constricted sites which made them difficult to reorganize along modern lines. By comparison, overseas competitors possessed yards which were newer and often specifically designed for efficient operation using the new techniques. Again, in terms of labour, the "youthfulness" of the overseas producer, using semi-skilled labour, gave them the decided advantages of training and schooling their work force⁸⁶ in the new techniques and of developing good labour-management relations within the industry. By contrast, British production retained the higher-cost, skilled labour and was encumbered by "restrictive practices" in which craft demarcations

were extremely rigid. e.g.

"The delays resulting from demarcation practices may be illustrated from the fitting of a port light. This requires a ship-wright to mark the position for the light, a driller to prepare a centre guide hole, a caulker to bolt the light and attach the chain; each tradesman being summoned by his foreman and the operations carried out in sequence."⁸⁷

However, in time the pressures of competition initiated trends to ameliorate labour relations in the industry in the United Kingdom.⁸⁸

The competitive position of British shipbuilding was also affected by the government policies of countries engaged in the industry. The export market for British ships became increasingly difficult due to the growing protection afforded overseas competitors in their home markets and to subsidies which enabled these competitors to compete in world markets; by comparison the United Kingdom industry was not subsidized.⁸⁹ Until the mid-1960's shipbuilding in Britain concentrated on production for the home market.⁹⁰ Changes in credit facilities to boost exports altered this long-standing situation but, although this increased orders for overseas buyers it also had the effect of forcing British owners to purchase from overseas.⁹¹ In the short term this increased orders but many authorities questioned the ultimate impact on British shipbuilding and, in a wider context, on the balance of payments situation.⁹²

A further problem in British shipbuilding at this time lay in the general inflationary trends in the national economy. This and delays in delivery played havoc since shipbuilders had to compete for orders set at fixed prices.⁹³ This stressed the urgent need for increased efficiency and organization in the assembly of

raw material inputs and in production to avoid penalty clauses in late deliveries and to speed up construction to reduce the time lag between signing of contracts and completions of orders.

Against this background of trends at the national and international levels shipbuilding at Burntisland proved to be on a weak foundation. It had prospered in the increased market demand to 1958 but since then "demand had been only sufficiently regular to allow the company to hold its own in a declining market."⁹⁴ Its future would depend on its ability to secure orders and weather the rising pressures in market. To be competitive, prices had to be held, delivery dates met and production rendered more efficient by improved organization of production and labour.

At the time of interview (November, 1966) the company had managed to survive in rising competition and remain viable.⁹⁵ Overall from 1959, twenty-three vessels had been delivered from the yard but some had been accepted merely to cover overheads in periods of slackness. By 1966, the competitive position of the company had been weakened by its failure to modernize and adopt the emerging new techniques in shipbuilding and production was centred in a fairly wide range of vessels which precluded the introduction of standardization and the economies this technique provided.⁹⁶ In this failing, size and physical site layout were factors making innovation difficult and uneconomic under existing circumstances. To gain maximum economies, standardization and prefabrication in shipbuilding requires ample area suitable for this type of production, a steady market for a particular type of ship and a large amount in capital investment in equipment and layout of facilities. Production at

Burntisland could not meet these requirements. It was a small, three-berth yard located at a constricted site unsuited to expansion and the trend towards larger vessels reduced the scope of its potential market forcing it to continue its emphasis on a range of custom-built, smaller vessels. The company was a small, private concern⁹⁸ unable to afford the investment necessary for radical reorganization, an investment which they considered was not economically justifiable in the existing market situation.⁹⁹

The industry in Burntisland was obviously subjected to trends at the national level. It had experienced delays in deliveries which reduced profit margins already affected by the need to accept fixed-price contracts; it had had its share of labour problems and rising costs of labour and it was caught up in the changeover to produce for foreign - as against home - owners. All these factors had repercussions on its competitive position and future operation.

Experience at Burntisland indicated that delays in delivery were the result of slow delivery of the smaller auxiliaries used in outfitting and of changes in specifications.¹⁰⁰ Steel, purchased from suppliers throughout the United Kingdom when and where it was available, presented no problem. Similarly with the main auxiliaries such as engines, propellers, deck machinery and boilers. The problem lay with smaller auxiliaries including copper pipes, small castings, nuts and bolts. Delays in delivery of these items have been common and have been a factor in raising costs in terms of labour and in penalties for failures to meet delivery dates. The gravity of this situation was aggravated by inflation

which affected the need to accept fixed-price contracts as competition increased.¹⁰¹

In terms of the availability and suitability of labour the position at Burntisland was assessed as better relative to most United Kingdom shipbuilding centres but inferior in comparison to overseas competitors.¹⁰² Like other ship-builders in the United Kingdom, Burntisland suffered from a shortage of skilled labour partly as a result of "protective" labour policies which limited the ratio of apprentices to journeymen and partly to losses of trained personnel to more stable employment at Rosyth dockyard. "Restrictive" practices were also effective but were held to be less than at other United Kingdom locations, partly as a result of the general lack of alternative male employment in the area in which ship-building set the norm for wages.¹⁰³ Overall, labour was assessed as being available and of high quality. This could prove an advantage in rising competition.

The competitive position of Burntisland was also affected by the policies of the central government to facilitate exports (p. 5.32). Of the twenty-three vessels completed at the yard between 1959 and 1966, twenty were for British owners but by contrast, the orders on hand in 1966 consisted of a cargo-passenger ship for Pakistan and two cargo vessels for German owners.¹⁰⁴ While these orders eased the situation for the company in the short-term it is this writer's opinion that the government policies would, in the longer term, be detrimental. They would reduce the home market and force the industry to compete in the highly-competitive export market against competitors with better equipped facilities and with

subsidies denied the United Kingdom producer. As it was, with the delivery date of the last existing order scheduled for the spring of 1968, it was essential for the company to obtain another contract in early 1967 if continuity was to be preserved.¹⁰⁵ Thus the immediate future was open to question.

In summary, the future of shipbuilding at Burntisland was clouded by general trends in the industry at the national and international levels and by local conditions which prevented any radical modernization and organization of production. Physical constriction of site and the investment involved in the trends towards prefabrication and larger vessels precluded change. The view that this was an asset to the company in that it saved increased costs and overheads incurred by competitors who engaged in such reorganization and in that it reduced competition in the small-ship market¹⁰⁶ cannot be accepted since any reduction in competition from this source would be more than offset by the decreased market for small ships as the demand for larger vessels rose. Again, this viewpoint was pressured by the emerging rising trends in shipbuilding for overseas owners as a result of government policies to expand exports; competition from subsidized, overseas competitors would make this market tighter. Similarly, one must question the reasoning that the size of operation at Burntisland would continue to be an asset in terms of raw material supplies. All of these factors signified a weakening of the competitive position of the industry at Burntisland and even accepting that labour could be an advantage in future competition, one must admit that this asset was reduced in value with the lower degree of skill

necessary in the industry and with the trend towards production for export. The immediate future was dependent on several factors. For the preservation of continuity in production, orders were imperative; to improve its competitive position the company had to weather competition as inevitable rationalization of the pattern of smaller yards was carried through either by closure or by reorganization into larger production units.¹⁰⁷ It is this writer's opinion that this reasoning was over-optimistic since the indications above suggested that the demise of shipbuilding at Burntisland was not beyond the realms of possibility.

In conclusion, the future of the shipbuilding and repairing industry was not bright. Its strength lay in the artificial market situation created by the government at Rosyth. This gave a degree of stability in contrast to that at Burntisland. The available evidence suggested that in Fife as a whole the industry would decline, the degree of decline depending on the continuation of government policies towards the naval dockyards and on the ability of the Burntisland Shipbuilding Company to weather the rising tide of competition for which it was ill-equipped.

The Textile and Clothing Industries.

The textile and clothing sector of Fife industry consisted of a diverse range of activities. Diversity was apparent in industry type, in product, in fibres used, in trends in the various sections within the industry, and in the distributional pattern throughout the county. To facilitate the analysis of the industry and the assessment of its future potential in Fife, a classification by industry type based on the Ministry of Labour's

Standard Industrial Classification (1958) was used. The analysis revealed a general, overall slow growth in this sector as it existed in 1959, a slow growth made possible only by the introduction of new establishments.¹⁰⁸ The evaluation of the future potential of the industry indicated that the possibility of expansion was limited. In this, trends of decline in weaving, which represented the largest employer in the textile-clothing sector, increasing market competition in most sections and a growing labour problem were factors of importance.

In the context of this thesis, the textile and clothing sector was a significant employer particularly of female labour (p. 3.08). Next to engineering and electrical goods it was the highest growth sector in Fife industry between 1959 and 1967, mainly as a result of the introduction of new establishments, (p. 3.11), and as such partially offset the contraction in the county's industrial base. However, despite this apparent indication of strength, further analysis and investigation revealed that trends of decline at the national level (pp. 3.11-3.12) would eventually be effective in the industry in Fife, the degree depending on the cumulative trends in the individual, diverse activities comprising the textile-clothing sector.

In terms of industry type, the textile-clothing group was extremely varied. Textile manufacturing was based on weaving with a subsidiary emphasis on spinning, jute, hosiery and other knitted goods, and carpetmaking (Table 5.11) while clothing was concentrated in weatherproof outerwear and dresses, lingerie and infants' wear (Table 5.12). The distributional pattern was the most dispersed of

the principal industry groups in Fife but a concentration existed in Dunfermline with a secondary emphasis in Kirkcaldy-Glenrothes, while production in Leven and in the rest of Fife was less significant in the county setting. (p. 3.33; Map 5.04).

Textile Manufacturing

The manufacture of textiles in Fife in the 1959-67 period represented the rump of a once larger and more important industry.¹¹⁰ In this period it was based on weaving with a secondary emphasis on spinning, jute, hosiery and other knitted goods, and carpets. (Table 5.11). This diversification provided a limited degree of strength as indicated by the trends in these various sectors between 1959 and 1967. Stability in jute and the combined growth in spinning, hosiery and other knitted goods, and carpets cushioned the total impact of the decline recorded in weaving. (Table 5.11). This variation in the trends of the industries comprising the textile group made it necessary to analyze and assess each industry individually. Only thus could one evaluate the future potential of textile manufacturing in Fife.

The weaving of cotton, linen and man-made fibres was the most significant activity in Fife textiles. Not only was it the largest employer but it was also the sector giving cause for concern as a result of its decline between 1959 and 1967. (Table 5.11).¹¹¹ The analysis of the trends in employment and production in the weaving industry in Scotland and more so in the United Kingdom indicated a rapidly contracting industry. (Table 3.17). However, the survey of the Fife situation revealed that although weaving was under severe pressure, the rate of decline in employment in

the county was much less pronounced than that in both Scotland and the United Kingdom (Table 3.17). This was the result of several factors. It was due in part to the involvement of Fife producers in the manufacture of natural and artificial silks, in which market competition was not excessive,¹¹² and in linen and union fabrics which was expanding slowly in production in Scotland, (Table 3.17), partly to the diversification in products and to the concentration on higher quality output, and partly to the organizational structure of the industry in Fife which constituted an obstacle to the rationalization of productive capacity being effected in other parts of the country, notably in England. In the short-term, as indicated by the lower rates of decline in employment, these factors suggested an apparent relative strength in weaving in the county but more detailed analysis of the industry¹¹³ and its future potential proved this strength to be superficial. In the longer-term only the concentration on higher quality products was an asset; by comparison, diversification involved producers in short-run orders which, together with the structure in which the small, family-owned concern was still relevant, prevented the economies of scale possible in larger, more specialized, standard, long-run operation.

The problems facing weaving in Fife were several and varied but interrelated. They have been classified in this thesis as those of market demand and competition, labour, firm size and structure, and geographical marginality. The magnitude of these difficulties differed according to the product manufactured, silk or linen and union fabrics, and to the value of the product.

Competition in market was affecting the industry; it was severe in linen and union fabrics but less so in silk. Again, the proposed entry of the United Kingdom into the European Economic Community, if successful, would intensify market competition for which the home producers were at a decided disadvantage. The availability and, more so, the suitability of labour was developing into the principal problem confronting the weaving industry in Fife. Emigration and competition from new industries locating in the county were radically reducing the intake of suitable labour and affecting the traditional skills on which the industry depended, a situation which, if left unsolved, could be a vital factor in any decision on the future operation of weaving in Fife. The organizational structure, in terms of firm size and group participation, constituted a weakness which limited investment and reduced the competitive status of the industry in market. In this, the continued dependence on small, family-owned concerns was an obstacle to the rationalization of capacity essential for economic operation. Each and all of these problems affected the competitive position of the weaving industry and with the major markets centred in the south, particularly in London, they heightened the difficulties of operation in a marginal location.

Competition in market was a crucial factor curtailing production in the Fife weaving industry. It was particularly limiting in exports but also significant in the home market which accounted for approximately 85%-90% of total output.¹¹⁴ In export markets, only in countries of the European Free Trade Association were United Kingdom textiles effective. In other areas protective

tariff policies, encouragement of home production and competition from sources such as Hong Kong and India in the cheaper quality range of products were significant barriers to the British textile manufacturer. Conversely, the protection afforded the home producer in higher value production in the British market was vital in preventing a further substantial intensification of competition.

London and to a lesser degree the larger urban centres in England constituted the home market for Fife production.¹¹⁵ Despite tariff protection against overseas competitors, manufacturers in Fife were experiencing growing competition in this market, competition which was severe in the linen and union fabrics sector but less so in silk production.¹¹⁶ In the former, competition in cheaper quality products imported from Hong Kong, India, East Europe¹¹⁷ and also from Lancashire was not only forcing producers to concentrate on higher value production but was effectively curtailing the entire wholesale domestic market necessitating an increasing emphasis on contract sales to government departments and catering and other institutions. In silk manufacturing, competition in the home market was described as "keen" but the concentration on quality products reduced its intensity to manageable proportions.

The attempts of the United Kingdom to enter the European Economic Community were viewed with grave concern in the industry and constituted a crucial element in assessing the future potential of weaving in Fife. Admission would increase competition in the export market but, more important, it would remove the protective tariff barriers in the home market and open it to European textile producers whose productivity was higher than those in Fife.¹¹⁸

Successful entry would undoubtedly intensify competition in a shrinking market and heighten the disadvantages of the marginal location of the Fife producer. Overall, doubts existed that weaving manufacturers in the county could meet this potential competition but, in the interim, by keeping in touch with market trends and demands, by modernizing plant layout and increasing automated production, by product diversification and by trying to hold the costs of production with such measures as the use of road transport against rail to reduce transfer costs and the use of more stable-priced synthetic, in preference to natural fibres, they were attempting to increase efficiency to meet the growing competition in market. The future of the industry in Fife depended on the degree of their success in these measures.

The availability and more so the suitability of labour represented the principal short-term problem in weaving in Fife, a problem which, if left unsolved, could virtually eliminate the industry from the industrial structure of the county. Labour in general was available but skilled labour was at a premium and labour suitable for training was in short supply. The availability of labour had declined from 1959 when the virtual monopoly of female employment held by the textile firms was progressively broken by the introduction of new industries offering higher wages and more attractive conditions of work.¹¹⁹ This competition was aggravated by the loss of potential employees as a result of the high emigration associated with the decline of coalmining (ps. 2.31 and 4.45; Chapter VI) in areas which had acted as reservoirs for textile workers.¹²⁰ Further, the alternative opportunities provided by these

new industries furnished a means to escape employment in the textile mills and heightened the existing attitude of stigma against work in textiles, a condition accentuated by authorities in education "who", it was claimed, "were steering students away from the industry".¹²¹ As a result, the traditional textile industries in Fife were finding it increasingly difficult to recruit and hold suitable labour.

This decline in the availability of labour affected its suitability. Undoubtedly, the textile industry was attracting the less suitable elements of labour. Manufacturers complained that recruits to the industry lacked the basic level of education, aptitude and attitude to become skilled weavers.

"The academic ability of the labour intake into the industry is ridiculously low. Most applicants are deficient in basic education and aptitude to become proficient weavers. Moreover, their attitude to work and general conduct leaves much to be desired."¹²²

This statement represented a general consensus of opinion on the suitability of the labour intake into weaving and contrasted markedly with that of the pre-1959 period.

The deterioration in the quality and attitude of the younger elements in the labour force was adversely affecting the industry and carried profound implications for the longer term assessment of its future. As a result of poorer quality intake, the availability of alternative employment and early marriage and pregnancy, the turnover of labour had risen appreciably to "alarming proportions." Absenteeism, mainly as a result of trends in the younger, single employees, was also rising but had not yet reached the problem level. By the mid-1960's this increase in labour

turnover and absenteeism was affecting the efficiency of the weaving industry in Fife. Production had been curtailed by the shortage of skilled labour especially in silk and in higher quality linen and union fabric production;¹²³ productivity, though rising slowly as a result of increased automation and modernization, lagged behind competitors in England and in continental Europe;¹²⁴ the costs of training were rising. Overall, these difficulties were reflected in rising costs of production, a grave situation when considered against the disadvantages of geographical marginality, particularly in the sectors open to more intense competition in market.

In the longer term assessment of the future of weaving in Fife, it is this writer's conviction that the above labour situation will deteriorate still further and thus intensify the problems facing the industry in Fife. In the past the labour force in weaving, noted for its skills and quality-conscious approach, constituted a significant asset which helped offset the marginal location of the industry.¹²⁵ While it was maintained that the industry had retained this element of skill,¹²⁶ the situation was changing rapidly as natural wastage replaced older labour with younger personnel whose suitability was in question, this at a time when rising competition in market and the introduction of faster, more sophisticated machinery were placing an increased premium on skilled operators. Moreover, the competitive position of the traditional textile industry in the local labour market would weaken as new industries already located in the area built up towards their full employment capacities and as others were introduced. With no apparent solution to this problem on the horizon, this could prove

critical in the future of weaving in Fife.

The above conclusions on labour in the future potential of the weaving industry in Fife were made despite the knowledge that improvement of the situation had been attempted. Silk manufacturers had arranged conducted tours of interested school-leavers around the factories to "dispel doubts of the erroneous image of conditions of employment" and so attract better quality recruits. One firm offered a cash bonus for each new worker recruited by an employee plus an extra payment if the newcomer remained for more than two months.¹²⁷ Several firms have abandoned the traditional system of "training with Nellie" in favour of an established training school under a qualified instructor.¹²⁸ None of these measures can claim any large degree of success although in the introduction of formal training and instruction, time will be necessary to assess the results. The most successful innovation in this context to date has been the rise in mechanization and automated production enabling firms to operate with fewer skilled employees while holding output by higher productivity. However, this trend to automated control and modernization in itself created further problems for the industry.

The weaving industry in Fife has committed itself to investment in mechanization and modernization. This was essential to remain competitive in the growing competition in market, and less directly, to reduce the pressures imposed by the shortage of skilled labour, but it created a dilemma for the producers in the county. Firstly, it was an investment which manufacturers in Fife could ill-afford. Capital was not plentiful as a result of the organizational structure, which continued to emphasize small units

of production, many with no affiliation to larger groups, and general market conditions in which growing competition was reducing profit margins. Secondly, the need to justify the capital expenditure implied that production and/or productivity had to be raised considerably by the maximum use of machinery and labour. However, the market situation was not conducive to any substantial increase in production¹²⁹ while the shortage of skilled labour and the general deterioration in attitude of the labour force as a whole had to be considered in the need to maximize the use of new machinery.¹³⁰ Overall, these factors tended to limit the level of investment which was concentrated in the conversion of looms to automated control and in the fibre preparation and winding sectors of the industry.¹³¹ Thus, in summary, capital was invested in the weaving industry for survival rather than for any planned, major expansion. Failure to do so would virtually have ensured a marked contraction of weaving in the county but such were the existing conditions in market it was doubtful if the investment could be justified by returns in the foreseeable future or if it would be sufficient to guarantee the continued operation of the industry.

Against the background of growing competition in market, shortage of skilled labour and the dilemma of the degree of investment in mechanization and modernization, the organizational structure of the weaving industry in Fife constituted a major weakness. To be competitive, this structure was in need of radical rationalization into viable-sized units of production. The emphasis on the small firm, several of which were family-owned and operated concerns,¹³² represented an anachronism in the industry where trends to takeovers

and amalgamations were the rule rather than the exception.¹³³ In the short term, this structure of weaving along with a degree of diversification of production had been in part responsible for the relatively moderate decline in employment in the industry in Fife (p. 5.40) but in a longer-term analysis the failure to alter this prevailing structure could prove disastrous. Ample evidence existed to substantiate this conclusion. The lack of available capital for investment had led to the undercapitalization of the industry. (p. 5.46). Most firms marketed through agencies rather than sales offices to reduce costs.¹³⁴ Size was held to be an effective factor in reducing the influence of a delegation to the Board of Trade to protest against the "dumping" practices employed by East European producers.¹³⁵ Further, the small-scale operation of the industry prevented any effective emphasis on research and development. Overall, it is this writer's view that only by amalgamation and/or takeover, and subsequent, inevitable rationalization into economically strong units could this industry survive in growing competition. Such amalgamation and rationalization would create a much more efficient and competitive industry by the accumulation of benefits from scale economies such as those of long-run standardized production and savings per unit production in administration, marketing, labour, investment and overheads. In such a trend the prevailing attitude against amalgamation must be changed.

Viewed against the existing conditions of the intensification of competition in market, deterioration of the labour situation and the inadequacy of the local organizational structure, the marginal location of the industry represented an obstacle to its

continued operation in the county. The area lacked the raw materials for this industry, all of which were imported either from overseas or from England, but more vital in this context of geographical marginality, the location of the market in England, particularly in London, increased the costs of transfer of the finished products relative to those of producers nearer the market and thus reduced the competitive status of the Fife manufacturer.¹³⁶ This situation was crucial in rising market competition and although measures had been taken to minimize these costs,¹³⁷ they remained higher than those of English competitors. In addition, further costs were incurred by the need either to maintain sales offices or work through agencies in the principal market locations. Overall, every firm interviewed agreed that marginality raised the costs of production but that on the whole this was offset by lower labour costs and overheads. Only in the lower value products were the costs of marginality considered to be prohibitive.

In summary conclusion, the analysis of weaving in Fife revealed an industry significant in the industrial structure, particularly as an employer of female labour, but one whose future was pressured from several, varied but inter-related sources. Of these pressures, the problem of rising competition in market was outwith the direct control of the Fife producers and simply had to be accepted by them. Their competitiveness in this rising competition was of more vital concern in the evaluation of the industry's future prospects and this depended on the efficient use of all the available assets of production in Fife relative to other areas. Despite the apparent deterioration in the quality of labour and the conclusion

that the situation will deteriorate still further, the skilled labour force constituted a crucial factor in the fight for increased efficiency and survival. Aided by increased modernization and mechanization, the restructuring of labour training programmes, the introduction of better conditions of employment and the creation of a better image of work in the textile industry, and the amalgamation and rationalization of organization and productive capacity, the available skilled labour could prove a decided asset in the competitive pressures facing the industry. In this fight for survival a sense of urgency must be instilled into the industry, particularly in the rapid acceptance of the need for amalgamation and rationalization. Only thus can scale economies be achieved, the returns being then available for a reinvestment programme in the industry to realize greater productivity and efficiency. Overall, the future of weaving in Fife will depend on the degree of success in altering the existing conditions within the industry. In the light of available evidence one can envisage amalgamation and rationalization, either willingly or forced by economic necessity, a continuation of the trend to modernization and mechanization and an overall reduction in the labour force as these other factors take effect.

Hosiery and Other Knitted Goods.

The manufacture of hosiery and other knitted goods in Fife represented one of the subsidiary textile industries noted for their expansion in the 1959-67 period, an expansion which, in part, compensated for the decline in the weaving sector of textiles in the county (p. 5.39) and which was the result of the location of

new establishments. In several respects it differed from other textile manufacturing in Fife. It was dispersed throughout the county in numerous small mainly privately-owned concerns¹³⁸ but with a degree of concentration of employment in Dunfermline-Inverkeithing and, to a lesser extent, in Leven by 1967.

(Table 5.13; Map 5.05). Further, and most vital in the assessment of its future potential in Fife, it emphasized the production of higher quality products for an expanding market which greatly reduced the unfavourable consequences of operating from a small firm structure in a geographically-marginal location. Finally, the apparent availability and suitability of labour contrasted with that in other sectors of textiles in the county. Overall, mainly as a result of the expanding market situation, hosiery and other knitted goods was assessed as a stable industry capable of further limited expansion.

Expanding market demand was the key factor in the growth of this industry in Fife in the 1959-67 period. It initiated the search for space and labour leading eventually to the location of new establishments in the county without which expansion would have been negligible.¹³⁹ (Chapter VII). Further, it was responsible for the operation of the industry at full production during this period. Equally important in this expansion, production in Fife was concentrated in higher quality products which represented growth lines in the industry,¹⁴⁰ (Table 5.14), gents' underwear at Rosyth and knitwear, including some knitted hose, at the other locations in the county. The expectations of continued growth in demand was a significant factor in the assessment of strength and possible future

expansion in the sector.

The involvement in the production of quality products for expanding markets greatly reduced the pressures of competition in the hosiery and other knitted goods industry compared with others in the textile sector. It was particularly effective in minimizing the consequences of geographical marginality and in cushioning the shortcoming of the dependence on the small-scale structure in knitwear. Marginal location was not effective in the assembly of raw materials which were purchased at delivered prices from sources in Central Scotland,¹⁴¹ nor in distribution to export markets which used air freight¹⁴² and, in some instances, parcel post in small quantity orders, both modes of transfer reflecting the emphasis on high value, quality production. Even in production for the home market, centred mainly in London, South-East England and the Midlands, the effects of marginality were substantially reduced by the expanding market conditions, the value of the products and by the fact that the group manufacturing gents' underwear, by far the largest employer in the hosiery and other knitted goods industry in Fife, had centralized this line of production at Rosyth. Overall, under prevailing conditions, geographical marginality had a minimal effect on the operation of this industry in Fife. In terms of structure, the small-scale, privately-owned operation in Fife represented a weakness which had been masked by expanding market demands.¹⁴³ While investment in machinery, aided by government grants for plant and machinery (p. 2.23), had been effected it had been made mainly by new firms established in the area. In summary, like geographical marginality,

the prevailing structure of the hosiery and other knitted goods sector would be disadvantageous in competition given a change in conditions to a declining market demand.

In addition to the advantages of production for an expanding market, the hosiery and other knitted goods industry apparently encountered no major difficulties in recruiting and holding suitable labour. With the exception of the Dunfermline-Inverkeithing concentration, the dispersed location in areas of labour availability not pressured by new industries was a significant factor in this situation. In Dunfermline, the largest producer, by offering excellent conditions of employment in new premises, was attracting labour from the older weaving industries in the area and had a waiting list of applicants.¹⁴⁴ The turnover of labour in the industry as a whole was relatively low as was absenteeism and neither created any major problem in production. Overall, the labour force was considered as suitable when trained and in the newer establishments interviewed it was held to be improving.¹⁴⁵ However, this situation of available and suitable labour could alter as new industries, especially the female-employing electronics industries, locate in the area.

In summary, the hosiery and other knitted goods sector in Fife appeared relatively stable and secure as a result of its involvement in quality products for an expanding market. The growth in market demand glossed over and minimized the disadvantages of geographical marginality and, more so, of the small-scale structure of the industry. The future of the industry depended on the expected continuation of the rise in market demand, on the continued

availability and suitability of labour and on the possible introduction of further new establishments. In this future, the strength of the large manufacturer of gents' underwear at Rosyth was a significant factor and a core area around which further growth could be developed. Overall, it is this writer's view that the stability of this sector will continue into the post-1967 period with a limited degree of expansion a possibility.

Carpet Manufacturing.

The manufacture of carpets in Fife, located in an old-established family company at Kirkcaldy, represented another of those smaller sectors in textiles in which growth in employment between 1959 and 1967 partially offset the decline in weaving (p. 5.39). The analysis of statistics in employment and in production classified carpetmaking as a growth industry throughout the United Kingdom,¹⁴⁶ (Table 3.19), and, with favourable conditions of rising market demand, (Table 5.15), these growth trends at the national level were expected to continue. However, the validity of using these trends as an indication of the future of the carpet industry in Fife required qualification. With production and employment both rising, attention being paid to market contacts and design, capital being invested in new looms and in factory extension,¹⁴⁷ the operation at Kirkcaldy appeared sound and assured but, against this generally progressive background, production still emphasized the cheaper range of all-wool carpeting for which market demand was declining, (Table 5.15), a shortcoming heightened by an apparently deep-rooted reluctance to change to the growth lines in

the industry. This failure to adapt readily to changing market demands, which was characteristic of the entire floorcovering industry, (p. 5.05), and the obvious reluctance to change were weaknesses casting doubts on the future of the industry in Fife.

For the Fife producer the most crucial problem confronting the industry lay in the intensification of competition in the market for all-wool carpeting,¹⁴⁸ especially in the cheaper range manufactured at Kirkcaldy. This competition, which stemmed from two sources, namely, competitors producing a similar product and a growing acceptance of synthetic tufted carpets by the market, carried grave implications for the future of carpetmaking in the county. The expected continued contraction of the market would intensify the existing severe competition with a consequent reduction in profit margins already affected by the concentration on cheaper products in Fife. This reduction in profits would undoubtedly have adverse repercussions on investment which was necessary to remain efficient and competitive in rising market competition. It is this writer's opinion that production in Fife must either change to synthetic tufted carpets¹⁴⁹ and/or place a greater emphasis on the higher-priced wool products. Only thus would it remain viable. The continuation with present lines of production would encounter increasing difficulties as the market tightened and could prove a crucial shortcoming in the long-term future of the industry.

The apparent reluctance to change to growth lines within the carpet industry was difficult to explain when one considered the obvious cost benefits in synthetic tufted production relative to wool and the equally obvious indications of a degree of progressiveness in

other aspects of operation at Kirkcaldy. The expanding market in tufted carpeting and the savings in costs of production as a result of the use of synthetic fibres whose costs were being held stable as the scale of demand increased,¹⁵⁰ (Table 5.16), the need for less-skilled labour and the reduction in time of production, were factors significant enough to warrant the change from the all-wool product. Moreover, the steps taken to ensure the contact and knowledge of market trends essential in the production of cheaper-priced products,¹⁶⁰ the investment in several new looms and in a factory extension,¹⁶¹ and the obvious development of excellent management-labour relations¹⁶² were indicators of a progressive approach denied in the failure or inability to divert production along new and expanding lines. Overall, one had to conclude that, on the evidence available, and despite claims to the contrary,¹⁶³ the principal reason for the lack of adaptation to growth products in the industry was the inability of the company to finance such a changeover. In this, a resistance to amalgamation or takeover constituted a further obstacle to change, an obstacle which may have to be overcome if continued operation at Kirkcaldy is to be realized.

The growing intensity in competition, accentuated by the emphasis on cheaper quality production, increased the effects of the marginal location of the Fife producer. In this, the costs of distribution of the finished product, borne by the producer, were more vital than the costs of assembling the raw materials, (mainly spun wool yarns from Ayrshire, jute backing from Dundee and cotton yarn from Lancashire), which were purchased at delivered prices. At the time of interview the company had managed to absorb the

additional costs of marginal location by the use of the efficient services of a local road haulier to reduce the costs of distribution, and by the successful concentration on modern, attractive designs, and the retention of a suitably skilled labour force to ensure a share of the market. The future impact of this geographical marginality will depend on several variables such as the degree to which the company is successful in the increasing market competition, the ability to hold transport costs, the continued success in the design field and the degree to which it can meet the emerging problems in labour supply affecting the entire textile industry in Fife.

The analysis of the carpet industry in Fife indicated that the available skilled labour force constituted the main asset in the growing fight for survival. Labour, drawn mainly from Kirkcaldy and from the surrounding coalmining areas of central and east Fife, was available and though turnover and absenteeism were rising, they had not yet reached problem levels. Like the weaving industry and for similar reasons, (pp. 5.43 - 5.44), the intake of labour could have been improved both quantitatively and qualitatively but, on the whole, the work force was described as satisfactory and considered a decided asset in competition with competitors from the south. To retain this relative advantage the company had inaugurated their own training programme to select suitable trainees and train them in every aspect of carpetmaking, a programme which could help offset possible future difficulties in the recruitment and retention of skilled labour in the industry.

In summary conclusion, the carpet industry in Fife

represented a paradox in that it possessed several indications of a progressive operation and yet, on the vital issue of the urgent need to change its production to growth lines in the industry, it exhibited a reluctance and caution which could prove crucial in its future development. The assessment of its future was dependent on several variables, notably on its ability to meet the growing competition from competitors in wool carpeting and more so, from the rapidly expanding synthetic tufted products which were conditioning the growth trends in the entire carpet and rug industry. Continuation along the existing lines of production would require the maximum use of skilled labour which, despite possible problems in the near future, constituted the main asset of production in Fife. However, it is this writer's considered opinion that market trends, heightened by the disadvantages of marginal location, will eventually force the Fife producer to diversify production in a progressive changeover to synthetic tufted carpets in which the expanding market conditions will ease the intensity of competition in wool products. Only thus can the industry in Fife hope to expand. Failure to realize this adaptation will result in contraction, a trend seen in the reduction in employees between 1966 and 1967 (Table 5.11). Overall, little expansion can be envisaged with contraction a distinct possibility unless the change to growth lines in the industry is carried out.

Spinning of Cotton, Linen and Man-made Fibres.

Like hosiery and other knitted goods and carpet manufacturing, the spinning industry in Fife was subsidiary to weaving in the textile sector but its limited degree of growth, mainly as

a result of the establishment of a new factory at Glenrothes, helped offset the decline in employment in weaving (Tables 5.11 and 5.17). Further, and again similar to these other activities, spinning in Fife was of minor importance relative to other areas in the United Kingdom. Production, centred on the spinning of flax and hemp, synthetic and wool yarns, was concentrated in the Kirkcaldy-Glenrothes-Leven area in five firms of which only two, one the new establishment at Glenrothes manufacturing synthetic yarns and the other in flax-hemp spinning in Leven, were engaged solely in spinning.¹⁶⁴ (Map 5.06). These two employed c 75% of the insured population in the spinning industry in Fife in 1967 and both were branches of groups operating from Dundee.

Accepting that expansion in the weaving of linen and union fabrics, (p. 5.50), carpet manufacturing (p. 5.58) and in rope-making¹⁶⁵ was unlikely, the future of spinning in the county was tied closely to the prospects of the two firms located at Glenrothes and Leven respectively. As a result of differences in products and in market trends in these products, and in the existing labour situations in these respective areas, the prospects of the two firms varied. It was expected that expansion at Glenrothes would continue with stability or possibly a limited contraction at Leven.

Production at Glenrothes was monotype in the spinning of synthetic fibre yarns for manufacturers of tufted carpets in the United Kingdom, notably in the Midlands and Manchester areas of England.¹⁶⁶ Despite competition from other home producers¹⁶⁷ this constituted a strength since tufted carpeting represented a growth line in the floorcovering industry (Table 5.18). In contrast,

products manufactured at Leven were principally flax with some hemp yarns for lower-priced canvasses, twines and ropes, and mail bags, with a limited but growing section in synthetic yarns for furnishings and carpets.¹⁶⁸ This was a much weaker base than at Glenrothes. Indicators of market demand showed a stagnating industry (Table 5.19) and operation at Leven was under severe competition both from synthetic yard production and from home and continental competitors, this despite tariff protection against imports into the home market.¹⁶⁹ This competition aggravated the already narrow profit margins in the spinning of flax and hemp yarns.

Differences in the availability and suitability of labour were also apparent between the two locations. At Glenrothes, after a period of initial difficulties associated mainly with restrictive practices of former mining elements in the labour force, labour was assessed to be "available, keen to learn and suitable."¹⁷⁰ Turnover was low, absenteeism marginally higher but no problem, and productivity, though lower than at the parent company in Dundee, was rising.¹⁷¹ By comparison, the labour situation at Leven constituted a major obstacle to efficient operation. In general, labour was available but as a result of competition from the establishment of clothing firms nearby at Methil and the increasing opportunities of alternative employment at Kirkcaldy and Glenrothes, it was classed as unsuitable. Absenteeism was high, turnover "desperately so" and productivity was much lower than at Dundee.¹⁷² In part, this was due to the need to operate a two-shift system which placed the firm at a disadvantage in the growing competition for female labour and in part to the apparently poor attitude prevalent in the female

work force in the industry. The provision of improved facilities and of transport to work had not rectified this problem. In the existing situation of competition in market and in the marginal location of production this difficulty in obtaining and holding suitable labour was of vital concern in the assessment of the future of operation at Leven.

The disadvantages of geographical marginality were more effective in production at Leven relative to Glenrothes. Both operated sales offices in England which constituted the principal market, carpetmakers in the Midlands and Manchester for production at Glenrothes and London and the Midlands for output at Leven, but the lower productivity, lower value production and, especially, more severe competition accentuated the marginal location at Leven more so than at Glenrothes.¹⁷³ However, to put this issue in its proper perspective, it was held that the additional costs incurred in the distribution of products were offset by lower costs of labour and overheads in Fife relative to other areas. Nevertheless, it is this writer's view that, given further intensification of competition in market, the cost of marginal location could be a factor in the future of the industry in Fife.

In overall summary, the spinning industry in Fife was small and very much secondary in importance relative to that in other areas and to other textile industries in the county. Its future will depend on general economic conditions, particularly on demand and competition in the market. In this, since little growth can be expected in spinning attached to the carpet, linen and union fabrics and rope-making sections of manufacturing, the future

of spinning in Fife rests with production at Glenrothes and Leven. Faced with the alternative of improving efficiency by mechanization or succumbing to competition, these firms had invested in new plant and machinery.¹⁷⁴ This investment would be an asset in this competition. Similarly, the increasing involvement in synthetic yarns would be advantageous. Production at Glenrothes was already committed to this growth line giving a reasonable expectation of expansion. At Leven, the existing labour problems must be solved and the trends towards an increasing production of synthetic yarns accelerated if growth there is to materialize. On the basis of the evidence available one can expect a further limited expansion at Glenrothes with stability or a degree of contraction at Leven.

Clothing Manufacturing.

The manufacture of clothing in Fife between 1959 and 1967, centred on the production of weatherproof outerwear and dresses, lingerie and infants' wear, represented an industry in which the overall expansion of employment in the period masked fluctuations indicative of instability both areally and in terms of employment (Table 5.20). It was notable for changes effected in its structure and in its distribution, changes in which only the location of new establishments from 1962 prevented a marked contraction and which laid the foundations of a stronger base for future stability and possible expansion in the industry.

Clothing manufacturing in the 1959-67 period was concentrated in the production of weatherproof outerwear and dresses, lingerie and infants' wear. Although the direction of trends in these respective activities were similar, the magnitude of change

in them differed considerably, leading to a changing emphasis in significance from weatherproof outerwear in 1959 to dresses, lingerie and infants' wear by 1967.¹⁷⁵ (Table 5.12). The analysis of the employment statistics for the 1959-67 period revealed that the overall growth in the clothing sector resulted from the expansion in dresses, lingerie and infants' wear which exceeded the contraction in weatherproof outerwear. Both activities, especially weatherproof outerwear, had experienced decline in the initial stages of the period but the location of new establishments¹⁷⁶ from 1962 had reversed this trend and initiated growth, particularly in dresses, lingerie and infants' wear. (Table 5.12).

These changes in clothing manufacturing were even more pronounced in the distribution of the industry in Fife (Table 5.20; Map 5.07), changes which illustrated the spatial effects of instability in the industry and which fluctuated more in the production of weatherproof outerwear than in dresses, lingerie and infants' wear. Analysis of the distribution of the production of weatherproof outerwear in 1959 indicated a dispersed pattern but with a degree of concentration in Dunfermline-Inverkeithing and Leven. This pattern varied considerably during the 1959-67 period as Leven declined to insignificant status, as the industry died out in Dunfermline-Inverkeithing before being revived by the location of the new establishment at Halbeath (ref. 176) and as growth and then decline occurred in Cowdenbeath between 1962 and 1967 with the opening and subsequent closure of a firm in Kelty. (Table 5.20; Map 5.07). The changes in dresses, lingerie and

infants' wear were less dramatic than in weatherproof outerwear. Dunfermline-Inverkeithing, despite a reversal of trends from 1963, remained a major employer throughout the 1959-67 period. The location of new establishments in Kirkcaldy-Glenrothes resulted in growth in that area. The fluctuations in Cowdenbeath were due to the establishment and build up of a firm manufacturing infants' wear and its subsequent transfer to new premises in Kirkcaldy. Overall, the pattern of distribution of clothing in Fife in 1967 was similar to that of manufacturing industry in general with a decided emphasis in Dunfermline-Inverkeithing and Kirkcaldy-Glenrothes. In this, the locations of new establishments in clothing in these areas conformed to the general pattern of industrial location in the county. (Chapter VII).

The assessment of the future of clothing manufacturing in Fife was dependent on the evaluation of the results of the changes described above and on the asset of an available and apparently suitable labour force. The changes effected in the 1959-67 period reduced the instability in the industry and created a more favourable basis for expansion. By 1967 production emphasized the manufacture of dresses, lingerie and infants' wear for which market demand was rising steadily. (Table 5.21). In addition, the location of new establishments not only increased the scale of operation of the industry but also rendered it more efficient and competitive by investment in new premises and in plant and machinery, investment which strengthened their commitment to the area and so increased the stability of the industry in Fife.¹⁷⁷

However, not only was clothing manufacturing more stable but, given

the continuation of growth in market demand, it was on the verge of expansion. Several indications existed to justify this statement. The establishments which located in the area in the 1962-66 period had tested it and were in the process of either expanding labour and/or premises or stated their intentions to do so in the near future.¹⁷⁸ The existing favourable market conditions and the demonstrated ability of Fife to attract new industrial development (Chapter VII) suggested that the area was capable of drawing additional clothing establishments to it to utilize the available labour and space in the county. Overall, the available evidence indicated that the clothing industry would experience a limited expansion in the immediate post-1967 period, the degree of expansion depending mainly on the market situation existing then.

Relative to many other areas in the United Kingdom, the clothing industry in Fife possessed the decided advantage of an available labour force with a textile-clothing background and classed as suitable by the manufacturers.¹⁷⁹ Labour was available and the industry had experienced few problems in recruiting suitable labour in which turnover, though aggravated by early marriages and pregnancies, and absenteeism were described as "moderate and giving no cause for concern." Compared with the problems encountered in the recruitment and retention of labour in the majority of the various textile industries in Fife this situation in clothing was unexpected but can be readily explained by the lower degree of need, both quantitative and qualitative,¹⁸⁰ in the clothing sector and by the provision of newer premises and better working conditions than those in the traditional textile industries of the area.

However, rising competition from new female-employing industries which had located in the county, notably industries in electronics, was pressuring the existing labour market and indicated that a shortage of labour could develop in the clothing industry in the future, a situation which would remove the advantage held by the Fife producer in 1967.

Clothing manufacturing in Fife was affected by geographical marginality mainly as a result of the costs of distribution of the finished products but these costs were offset by the lower costs of labour and overheads.¹⁸¹ Raw materials, most of which came from England, were assembled at delivered prices and were not too significant in marginality. The costs of distribution, borne by the manufacturer, were more effective but were cushioned by the rising market demand, by the emphasis of some firms on the local Scottish market and the degree to which others were engaged in exports,¹⁸² and by the incidence of contract work carried out in Fife for a major retail outlet.¹⁸³ Under the prevailing market and labour conditions, geographical marginality was not a major factor limiting production in the clothing industry in Fife and only deterioration in these conditions could make it a matter for concern.

In summary, clothing manufacturing in Fife in the 1959-67 period experienced both structural and distributional change from which emerged a stronger, more stable industry derived from a growing emphasis on growth lines of production and from the introduction of new establishments providing a larger scale of operation in which investment created more efficient production. The future of the industry was favoured by the expectations of

continued expansion in market demand and by the apparent availability of suitable labour, both of which reduced the impact of a geographically marginal location. While these conditions, particularly that of labour, could alter it is this writer's viewpoint that a limited degree of expansion in the clothing industry was probable in the post-1967 period.

The Engineering and Electrical Goods Industries.

The significance of the engineering and electrical goods sector in Fife industry from 1959 can never be over-stressed. Only the substantial expansion experienced by this industry group between 1959 and 1967 salvaged the industrial base of the county from the crippling contraction in coalmining and, to a lesser extent, in linoleum and leather cloth manufacturing. (p. 3.12). This expansion, relevant in both male and female employment, (pp. 3.28 - 3.29), resulted from the location of new establishments in engineering and electrical goods. With little growth in the older industries in this sector, the introduction of these new establishments proved crucial not only in cushioning the effects of the decline in other areas of the economic base but also by diversifying and strengthening of the entire industrial structure as a result of their scientific, growth-type nature. They also possessed the potential to become propulsive industries and form an economic growth-pole in the area. In this, their concentrated location in Fife was largely responsible for the emerging geographical growth-pole in the Kirkcaldy-Glenrothes area (p. 3.66) and the associated effects of this on the surrounding region. (p. 3.69).

Engineering and electrical goods consisted of a diverse

range of industries. Analysis of this sector in Fife suggested a division into engineering and scientific instruments-electronics, a classification which cut across the traditional engineering-electrical goods division of the Standard Industrial Classification (1958).¹⁸⁴ Both groups had expanded rapidly between 1959 and 1967, especially scientific instruments and electronics which had been introduced to Fife only in 1958.¹⁸⁵ (Table 5.22). In addition, all the available evidence indicated an acceleration of this growth trend in the post-1967 period. Market demand, a prerequisite for the location of the new establishments crucial to growth and development in Fife, was rising rapidly;¹⁸⁶ most of the new firms were in the process of building up their labour force while others had not yet entered production; the favourable market conditions and the proven ability of Fife to attract new establishments clearly indicated that further location of new capacity in engineering and electrical goods industries in the area was inevitable. These conditions showed that this sector would experience an accelerated expansion greater than that of the 1959-67 period, the precise degree of growth depending on the situation in each of the diverse activities comprising the group. It is this writer's view that growth will be more pronounced in the scientific instruments-electronics sector where conditions were especially favourable for expansion.

The Electrical Goods Sector.

As implied previously (p. 5.68), any analysis and evaluation of the electrical goods sector in Fife in the 1959-67 period was essentially the analysis and evaluation of the introduction of electronics into the industrial structure. This industry was

grafted on to the economic base of the county and such was the rapidity of its growth that by the later stages of the 1959-67 time span Fife was being referred to as the "hub of the electronics industry."¹⁸⁷In this, the location of electronics branch establishments, motivated initially by the search for space to satisfy expanding market demand and drawn to Fife¹⁸⁸ by the available space and trainable labour in the area, constituted the most vital, positive feature of the several developments in the county's industries between 1959 and 1967. The growth in this sector was the largest of any in Fife and was instrumental in limiting the full impact of the decline in other industries in the industrial base. But, of greater and more far-reaching significance to the county's development, the introduction of electronics into the industrial structure created a solid foundation for further expansion. By 1967, this industry was dominating the electrical goods sector and with the favourable market situation, the continued growth of firms already located in the area and the expectation of further location of establishments, it would soon dominate the entire engineering-electrical goods sector and in time, the entire industrial structure of the county. Moreover this industry possessed the characteristics of a propulsive industry of sufficient force and momentum to create an economic growth-pole in Fife, a growth-pole in which the spatial concentration in Kirkcaldy-Glenrothes and, to a lesser degree, in the vicinity of Inverkeithing conditioned the location of the attendant geographical growth-pole. (Map.5.08).

The location and development of the electronics industry in Fife between 1958 and 1967 must be classed as a major achievement.

Although the industry had been located in an area with no previous experience of this type of manufacturing, by 1967 several indications of its success were apparent. Electronics had emerged as a significant employer in Fife industry, notably as a result of rapid growth from 1963¹⁸⁹ (Table 5.22). It occupied factory space totalling over three-quarters of a million square feet in fourteen establishments, all of which were introduced into the area from 1958. Equally important in the longer term assessment of the industry, electronics in Fife had, by 1967, attracted large units, most of them branch factories of producers of international repute in this field of manufacturing (Appendix 5.02). These large units formed the core of the industry in the county with a number of smaller producers, potentially vital links as suppliers of parts and services in the further development of the industry, on the fringes. These indices indicated the success achieved in electronics in Fife to 1967 and this, together with the increasing involvement in a diverse range of products from components to complete articles, (Appendix 5.02), constituted a strength which augured well for its future growth in the county.

In terms of future development, the analysis and evaluation of the electronics industry in Fife indicated clearly that it was on the verge of further substantial and accelerated expansion, the degree of which defied precise measurement.¹⁹⁰ The basis of this assessment lay in the mushrooming market for electronics and in the strengths of the industry in Fife enabling it to share in these favourable market conditions. Electronics manufacturing in the county possessed considerable assets which had accrued in the testing

period of the area as a suitable centre for the development of this industry. Production was both diverse and in growth lines in manufacturing. Relative to other parts of the United Kingdom, particularly to the principal electronics growth-pole in South-East England and the Midlands, space and trainable labour were still readily available in Fife. The structure of the industry, emphasizing large establishments of groups able to provide the financial backing essential for growth and development, had made it more conducive to expansion. The build up of electronics in the 1958-67 period had produced an industrial climate favourable for more rapid growth. Against these undoubtedly significant assets one had to weigh shortcomings such as the lack of a high degree of industrial linkage in electronics in the county to 1967, the branch factory complex which was a factor in the undercapitalization and relative neglect of research and development in the industry in Fife, and the possibility of labour shortages as the expected expansion in electronics materialized. However, in perspective, it is this writer's considered opinion that the assets of the electronics industry in Fife outweighed these shortcomings and rendered them less acute in the assessment of the industry's future in the county.

Rising market demand, in which the rapidity of technological change within the electronics sector was a major contributory factor,¹⁹¹ represented the key element in the evaluation of the strength of the industry in Fife. It was both a prerequisite for the location and development of electronics in the 1958-67 period and a vital consideration on which the assessment of growth in the

future was based. Production in Fife was centred in the manufacture of scientific instruments, radio and other electronic apparatus and telegraph and telephone apparatus (Table 5.23), a diverse range of activities. However, of more vital consequence to Fife industry and to this thesis, production was not only diverse but, with the exception of radio manufacturing, it was in products showing rapid growth, both in employment and in production, in Scotland and in the United Kingdom. (Tables 5.24 and 5.25). Analysis of these statistics illustrated clearly the role of Scotland in the electronics explosion in the United Kingdom.¹⁹² Fife was obviously sharing in this development and no evidence existed to suggest that the pace of growth and development would slacken in the post-1967 period. Indeed the indications were that the rate of expansion would accelerate as market demand continued its upward spiral. Some new establishments which had utilized temporary premises were in the process of moving into newer, permanent accommodation while others had effected sizable extensions to their original factory space.¹⁹³ Inquiries from electronics manufacturers considering Fife as a possible location for new capacity were increasing¹⁹⁴ and one major concern had committed itself to locate in Kirkcaldy.¹⁹⁵ These indices represented tangible evidence that Fife had been tested and found suitable as a base for expansion in electronics. With the acceleration of market demand one could expect the continuation of the growth trends in electronics in Fife but at a rate in excess of that established in the 1958-67 period.

The electronics industry in Fife possessed an invaluable asset in the availability of a trainable labour force, particularly

when compared with other parts of the United Kingdom. Labour constituted a major pull in the initial decisions to locate capacity in the county¹⁹⁶ and remained so even when the continued location of new establishments tightened the supply. In this, the larger concerns entered the area with no misconception that labour had to be trained or re-trained in their respective processes, a situation which was eased by the availability of labour suitable for training. Skilled labour and management for electronics in Fife was at a premium but this was not peculiar either to the county or to the industry, although in the case of the latter the degree was more acute in electronics than in industries requiring lower skilled personnel.¹⁹⁷ On the other hand, the expectations of a labour supply suitable in quality to absorb the training essential for efficient production was verified in the 1958-67 testing period. Experience showed that, given the opportunity, labour in Fife, particularly female labour, "possessed the attitude and the aptitude to develop into a first rate work force."¹⁹⁸ Several factors were significant in this evaluation. It reflected the basic character and fibre of the intake into the electronics industry which, by providing attractive conditions of employment and by efficient sifting of applications by personnel departments, was creaming the better elements of the labour available. It also reflected the organization and operation of the training schools and programmes set up by the companies under trained instructors. Overall, this attention to quality in recruitment and training paid dividends not only directly in the creation of the efficient labour force characteristic of the electronics industry in Fife but also indirectly in terms of labour

turnover, absenteeism and industrial relations. After the expected teething troubles in the earlier stages of settling into the area, no major problems had been encountered in these indices.¹⁹⁹ In summary, the electronics industry in Fife in 1967 assessed the labour situation as extremely satisfactory both in terms of its availability and suitability,²⁰⁰ an assessment thrown into much higher relief when compared with the labour problems in other industries in the county (e.g. p. 5.43) and electronics elsewhere in the United Kingdom.

However, despite this evaluation of available and suitable labour, most manufacturers in electronics were convinced that this favourable situation would be subject to pressure in the post-1967 period. This pressure would emanate from competition as firms already in production in the area expanded, as others in the preliminary stages of operation recruited employees and as further new establishments were attracted to Fife.²⁰¹ This competition for labour was aggravated by indications that the supply of female labour was less favourable than in the earlier part of the 1959-67 period. Industrialists in the area considered that the unemployment statistics did not constitute a "valid indication of available labour since the unemployed were largely unemployable."²⁰² Emigration, partly due to the lack of opportunities for male employment, was both high and age-selective and was effectively reducing the suitable labour and recruits to the industry. (Chapter VI). Activity rates in the female sector had risen closer to the Scottish and United Kingdom norms between 1961 and 1966. (Table 5.26). These trends in the supply and demand for labour suggested that unless labour could be attracted into industry in Fife, the competition for a suitable work

force would intensify and could develop into a force critical to industrial development in the county.²⁰³ (Chapter VI). Nevertheless, while accepting that competition for labour would intensify, it is this writer's opinion that the electronics industry in Fife would possess significant advantages in this competitive market. Relative to other industries in the area the superior conditions of employment in electronics and the growth of the electronics climate would favour this industry in competition. Relative to other areas, notably to London and South-East England, the hub of electronics in the United Kingdom, the labour situation in Fife would be more favourable for expansion. In summary, available trainable labour proved an asset in the development of the electronics industry in Fife and in spite of an expected increase in the competition for labour in the area the industry possessed sufficient advantages to retain its "pull" on labour relative to other activities in the county and to other areas in the United Kingdom engaged in electronics manufacturing. Labour in Fife was not expected to be a limiting factor in the expansion of the electronics industry.

The structure of electronics manufacturing in Fife bestowed upon the industry both assets and limitations with a balance in favour of the advantages, at least in the stage of development to 1967. The structure of the industry in Fife was based on branch factories and had developed from a relatively small-scale basis to a large scale enterprise centred on sizable establishments most of which were parts of groups of international repute in the electronics field²⁰⁴ and from the manufacture of components to a greater emphasis on finished products.²⁰⁵ The emphasis on large establishments and

their attachments to major industry groups was a decided asset in financing the growth and development of this industry in Fife.

Only large industrial concerns could finance the need for the new and modified machinery to meet rapid changes initiated by the innovation and invention which were characteristic of the electronics industry. Again, the structure of the industry in Fife, based on a core of large units with an adjunct of smaller concerns around them, represented a characteristic trend towards the emergence of an electronics complex in the area, a complex in which the smaller concerns could function in the vital role of suppliers to the larger as industrial linkages crystallized. However, the analysis of electronics in the county showed that the full benefits from the structural strength of the industry had not materialized by 1967. In this, the preponderance of branch factories was a major contributory factor.

Accepting that electronics manufacturing in Fife was still in its infancy in 1967, the tardiness in achieving even a moderate degree of integration constituted a major weakness in the industry.²⁰⁶ Notably, the growth of the industry had not stimulated the development of auxiliary suppliers and services to create the horizontal, vertical and diagonal linkages essential to maximize economies in the industry. Electronics firms locating in Fife complained that Scottish suppliers could not meet their demands at economically competitive prices. In addition, the structural emphasis on branch units of large groups favoured group purchasing of raw material inputs which were supplied from England where such services had been developed to a high order. The development of these linkages

was a priority if the electronics industry in Fife was to achieve its full potential, but, paradoxically, the improvement in transport, which was a factor in the location of new establishments in the county, contributed to limit a more rapid development of this integration. However, to place this shortcoming in its proper perspective and to stress the youthfulness of the electronics industry in Fife, it must be recorded that a limited degree of integration had occurred. Small concerns (Porter and Gordon; Highland Electronics) had produced parts for Elliott Automation; Hughes International (U.K.) Ltd. had sold components to both Elliott Automation and Hewlett Packard Ltd.²⁰⁷ and most significant of all in this context, the integrated expansion of Elliott Automation into microelectronics at Glenrothes and computers at Cowdenbeath and Hillend²⁰⁸ indicated that the development of the desired industrial linkages in the industry was a possibility in the future. Overall, it is this writer's view that, despite problems, these trends would continue as the scale of the electronics industry grows and as the development of an electronics climate accelerates in Fife and in Central Scotland as a whole.

The emphasis on branch factories in the structure of electronics manufacturing in Fife also curtailed the involvement of the area in research and development, a vital shortcoming in an industry where innovation, invention and design based on sound research were fundamental to growth.²⁰⁹ In 1967, electronics in Fife depended on the research and development carried out by the respective major groups at locations outwith the county. However, as in the case of integration, as the industry expanded in the area and as the

electronics climate built up, signs were emerging to indicate that this omission would be rectified in the future. Elliott Automation had opened a micro-electronics research laboratory at Glenrothes which was referred to as the most modern of its type outwith the United States.²¹⁰ This could be a forerunner to further involvement in this aspect of the industry in Fife and the greater the commitment made in this field the more rapid will be the expansion in the county. The expected growth of the industry in Fife should stimulate a higher degree of research and development in the area.

Finally, the introduction and development of electronics manufacturing in Fife was in the process of creating an electronics climate in the area, an element not open to precise statistical measurement but a vitally significant asset in any assessment of the industry's future potential in the county. This climate, making the industry more conducive to growth, was a consequence of the material evidence of expansion as expressed in such indices as the number and size of new establishments, the space occupied by electronics production, the growth in employment and the conditions of work, the publicity given to the industry. This material expression of expansion and well-being had produced in Fife a growing awareness of electronics manufacturing and its potential as a sound base for the further development of the area. Given the expectations of favourable market demand and the continued availability of labour, this emerging climate itself would be a pull to further new establishments²¹¹ and an important factor in the development of an electronics complex in the East Scotland region.

In summary, the success of the electronics industry in

Fife between 1958 and 1967 must rank as a major achievement in industrial location and development. This industry had been grafted on to a virgin area in terms of this type of manufacturing but not only had it survived the testing period it had also shown indications of considerable growth which would accelerate in the post-1967 period. Indeed, it represented one of the industries described by Milhau as "..... les industries répondant à des besoins nouveaux connaissent une expansion qui surprend parfois les entrepreneurs."²¹²

In this successful transplanting of electronics, motivated by the search for space to satisfy rapidly increasing market demand, the availability of space and trainable labour in Fife proved vital assets. In addition, the general improvements in transport links between Scotland and England had reduced the geographical marginality of the area, facilitating both the entry of raw materials and the distribution of products and also personal communications crucial to development in the electronics industry.²¹³ The growth experienced in the 1958-67 testing period was significant in cushioning the decline in other major sectors of the county's industrial base, but more important in the long term analysis it created a strong and diversified basis for further expansion. In terms of the future potential of the electronics industry in Fife one can envisage substantial growth. Market demand was mushrooming. Relative to other areas the availability of labour suitable for training was a decided asset and, despite possible problems in this sector in the future, the advantages of electronics in competition with other industries in Fife, together with the increasing efficiency of labour as a result of well-organized training programmes, should aid in the

retention of this relative advantage. In addition, the growing electronics climate in Fife would undoubtedly help in increasing the attention paid to research and development in the industry and along with expansion would precipitate the momentum towards a higher degree of linkage and integration. It must be noted that in this evaluation of future substantial growth, many firms were already in the process of expanding their operations in the county.²¹⁴ Every indication pointed to accelerated expansion which would probably again "..... surprend les entrepreneurs."²¹⁵

The Engineering Sector.

The engineering sector in Fife between 1959 and 1967 was noted for change, both structural and spatial, as a result of the location of new establishments in the county. Structurally, the most significant feature was the growth in other machinery which by 1967 had replaced industrial plant and steelwork as the principal employer in this sector. (Table 5.27). Spatially, the pattern of location of the new establishments had increased the status of Kirkcaldy-Glenrothes and Dunfermline-Inverkeithing in engineering. In 1967, these areas together with Leven dominated this industry in Fife. (Table 5.28). The effects of the structural changes in the industrial base of the county were significant both in the short- and long-term assessment. The growth in engineering helped offset the contraction in other sectors of industry in the county but more important, this growth was in male employment which bore the brunt in the industrial decline experienced in the 1959-67 period. (p. 3.28). In the longer term, the changes effected by the introduction of new establishments created not only a diversity in the

engineering sector but also a strength, since most of the new activities were in growth lines in engineering and, as a result, the industry in Fife in 1967 was more conducive to expansion than at any stage in the preceding period.

The expansion in other machinery between 1959 and 1967 represented the most important development in engineering in Fife during the period. As a result of the location of new branch establishments, this sector of the engineering industry introduced strength and diversity into the industrial structure and was particularly effective as an employer of male labour.²¹⁶ Other machinery in Fife in 1967 consisted of a wide range of products with establishments engaged in the manufacture of mining machinery, space-heating, ventilation and air-conditioning equipment, hydraulic equipment, parts for printing machinery and pumps and industrial valves.²¹⁷ But more significant in the context of the future potential of engineering in the county, this production was not only diverse but was also, with the possible exception of mining machinery, based on high value growth lines in the industry. (Table 5.29). In terms of spatial distribution, the growth of other machinery in Kirkcaldy-Glenrothes and its establishment in Dunfermline-Inverkeithing were the main features in the 1959-67 period. (Table 5.30; Map 5.09). Overall, as in electronics, (p. 5.79), 1959-67 represented a testing period for the expansion of engineering in Fife, a period in which the establishment of new factories and the growth experienced indicated the success of the county in attracting new concerns to the area, concerns motivated in the search for space and/or labour to meet the rising demands of market

(Chapter VII). The ability of Fife to supply space and trainable labour was an important asset in the location of these new establishments which were vital to the future well-being of engineering in the county.

The analysis of other machinery revealed that this sector of engineering would continue to expand. In this assessment, the assets of rising market demand and available labour were significant factors. Rising market demand had been a prerequisite for the location of new establishments in other machinery and, with the exception of mining machinery,²¹⁸ this trend was expected to continue into the post-1967 period. This constituted a strength in the industry in Fife, a strength which, together with the emphasis on high-value products, reduced the effects of the marginal location of the area to its principal markets in England.²¹⁹

The availability of trainable labour was a major factor in pulling engineering establishments to the county in the 1959-67 period and the experience of these new firms showed clearly that it was a vital element in the successful growth to 1967. As in other industries in Fife and in engineering throughout the United Kingdom, skilled labour was at a premium, particularly in the earlier stages of the period. However, the emphasis placed on training programmes which utilized the apprentice-training scheme, first under the auspices of the Fife Engineering Group Training Board and later under the Industrial Training Board for Engineering, (Chapter VI), had progressively reduced, though not eliminated, the problem of the shortage of skilled labour in the area.²²⁰ The availability of labour suitable for training was greater in engineering than in

other activities in Fife as a result of the industry's dependence on male employment.²²¹ Overall, the firms interviewed were satisfied with both the availability and the suitability of the trainable labour in the area; turnover of labour presented no problem and although absenteeism affected production in a few instances,²²² it had not proved insurmountable; labour relations were satisfactory with less restrictive practices than in other parts of the United Kingdom;²²³ with training, productivity was rising.²²⁴ This decided asset of a suitable labour force in engineering should continue to be relevant in the future development of the industry in Fife.

Against these advantages of rising market demand and available, suitable labour, other machinery in Fife, like the electronics industry, lacked integration. In 1967, the industries in this sector were primarily parts manufacturers for parent companies located elsewhere in the United Kingdom or assembly units of raw material inputs brought in from England. (Appendix 5.03). This situation was the result partly of the branch factory structure and partly of the apparent inability of Scottish producers to supply raw material inputs at competitive prices.²²⁵ Despite providing the asset of the ability to invest in the area, this structure could prove a weakness in any change towards a tightening market situation.

In summary, the successful introduction of new establishments in other machinery had been beneficial to the development of the Fife area in spite of the lack of the industrial integration necessary to achieve maximum economies in production. It has created opportunities for male employment in an area in which the

decline in this index between 1959 and 1967 was critical. Its emphasis on growth lines of production in engineering has both diversified and strengthened the economic base of the county and made it conducive to further growth. The continuation of rising market demand and the favourable labour situation in the area should assure expansion in the post-1967 period, an expansion mainly as a result of growth in the firms already in the area and possibly from the location of other new establishments. In this, the degree of expansion will be much less than in the electronics sector.

Industrial plant and steelwork centred in Leven (Table 5.31) was the other main engineering industry in Fife between 1959 and 1967. (p. 5.80). This industry was noted for its slow growth in employment throughout the United Kingdom,²²⁶ growth which fell below the rate of expansion in terms of value of production. (Table 5.32). In Fife, this trend in production was verified by interview.²²⁷ In the assessment of the future potential of industrial plant and steelwork in the county one could expect a continuation of the stability shown in the 1959-67 period with a possible growth as a result of the location of new establishments in the area (ref. 226). As in other machinery, though to a lesser degree, this industry in Fife possessed the advantages of rising market demand and the availability of a labour force suitable for training. Production was diverse (Appendix 5.04) and in lines showing growth. Skilled labour, though affected by emigration and by competition from newer engineering industries locating in the county, was improving with better training of recruits under the terms of the Engineering Industrial Training Board (Chapter VI). The company had no problem

in recruiting school-leavers to train in the industry and with training these recruits formed the nucleus of the work force. Again, turnover and absenteeism were described as "low" and labour relations as "extremely good".²²⁸ These assets reduced the detrimental effects of a location marginal to both raw materials and market.²²⁹ In this writer's opinion, industrial plant and steelwork in Fife should retain the stability it exhibited in the 1959-67 period, although growth could occur with the location of new establishments to utilize the labour available in the area.

Summary Conclusions on Other Major Industries.

The analysis and evaluation of "other major industries" in Fife between 1959 and 1967 was, as expected, a study of contrasts. The diverse characteristics of the industries involved, in products, in structures, in requirements and in trends,²³⁰ rendered this inevitable. In addition, the inherent dynamism in industrial development and its use in the growth area concept as applied to Fife made these contrasts unavoidable. This application of the concept, motivated by government policies, both negative and positive, to stimulate self-sustaining growth in the county, accentuated these differences among the "other major industries" and affected the future potential of each. Overall, the analysis indicated the validity of the general statement that growth at any point in time is unbalanced, no static equilibrium exists (p. 2.06).

"Dans le temps. on observe des périodes de progrès accéléré suivies de phases de ralentissement et de stagnation. Dans l'espace, certaines activités périmées sont en déclin alors que les industries répondant à des besoins nouveaux connaissent une expansion, qui surprend parfois les entrepreneurs."²³¹

With particular reference to the Fife case study, these differential trends were readily apparent at both the group and individual industry levels. In the former, the decline in linoleum manufacturing contrasted with the slow growth in textiles-clothing, shipbuilding and marine engineering, paper and board and more so with the rapid expansion in engineering and electrical goods. In the latter, the contraction in weaving in the textiles-clothing group differed from the growth in carpets, hosiery and other knitted goods, and in dresses, lingerie and infants' wear.

The analysis of the "other major industries" in Fife also verified the contentions of both the Toothill Report and the Central Scotland Programme for Development and Growth that firstly, the economic malaise of the country was attributable to an industrial structure emphasizing traditional small-quantity, specialized production-type industries most of which were declining or showing signs of slow growth and secondly, that only the introduction of growth-type industries could produce the diversification and strength to render this structure more conducive to expansion, (p. 2.15). None of the industries significant in the economic base of Fife in 1959 experienced anything more than a marginal expansion and none were conducive to major growth in the foreseeable future. Undoubtedly the "scope of the traditional industries had narrowed."²³² Similarly, the Fife case study clearly showed that the rapid expansion in electronics and in other machinery was the result of the introduction of new establishments into the county's industrial structure from 1958. The future development of Fife lay in the continuation of this trend. Only thus could the industrial structure be diversified

and strengthened sufficiently to offset the contraction in the declining sectors and to promote further expansion.

These contrasts in trends in the various major industries in Fife in the 1959-67 period were extremely significant in the context of this thesis since the economic, and associated social, development of the county was dependent on them. However, it was essential not only to describe, analyze and interpret these variations but also to explain them. Only thus could one ascertain the strengths and weaknesses of the economic structure of the area and its potential for growth and development. As such the study resembled both the Toothill Report and the Central Scotland Programme for Development and Growth in that its principal interest lay more in the causal factors involved than on the symptoms showing on the surface. (p. 2.15). However, it differed in the depth of detail necessary in the survey of the individual industries, detail which the Toothill Committee considered beyond the scope of their inquiry.

"We have not reviewed in detail the problems of individual industries, each of which might easily have absorbed all our resources and time: we have however tried to assess the implications of probable developments in them for the economy as a whole."²³³

The depth of study of the principal industries in this thesis has been indicated in this chapter and it remains to summarize the conclusions drawn from the analysis of each under the general headings of the effects of market demand and competition, of geographical marginality, of structure and of labour and to evaluate the overall potential of Fife for further industrial development.

Market demand and competition in market were vital elements in the well-being of industry in Fife between 1959 and

1967 and would remain so in the future. The analysis of "other major industries" in the county indicated clearly their dependence on market trends in the United Kingdom, particularly in England from Manchester south to London which constituted the main market for Fife producers. The weak sectors of Fife's industrial structure were the industries in which market demand was contracting (e.g. linoleum, weaving) or in which competition was particularly severe (e.g. shipbuilding and marine engineering, carpets as a result of the continued emphasis on the cheaper lines in all-wool carpeting). The strength in the structure lay in industries engaged in the manufacture of products for which market demand was rising,²³⁴ notably in scientific instruments - electronics but also relevant in other machinery, paper and board,²³⁵ and the newer industries in the textile-clothing group. Competition in market affected every industry in Fife but to different degrees in each depending on the demand for the products manufactured and their value and quality. Industries based on the manufacture of products for which market demand was declining or showing only slow growth and/or products which were of low value or quality were subject to intense market competition for which they were ill-equipped.²³⁶ Overall, for successful industrial operation in Fife, production had firstly to emphasize growth lines for which market demand was rising and secondly it had to concentrate on high value and quality products to be competitive in market. As stressed in the programme for development and growth the economy of Fife was, like that of Scotland, inextricably linked to that of the United Kingdom (p. 2.11). Given expansion at the national level, the county would share in the

increase in market demand stimulated by this growth.

Geographical marginality was a factor affecting industry in Fife but the analysis of the "other major industries" indicated that the degree of its impact varied from industry to industry depending on the intensity of market competition and on the related factor of the value of the product concerned. Undoubtedly the need to import most of the raw material inputs and more so to transport the finished products to markets mainly in the south increased the total costs of production relative to competitors located in the Midlands and South of England. Nevertheless, the Fife case study revealed that the impact of geographical marginality was considered a problem only by producers meeting severe market competition and manufacturing low value products. In general terms, the conclusions of the study on the effects of marginal location in Fife verified those of the Toothill Report.²³⁷ The increased costs of transporting freight to and from the Fife area were offset by savings in other elements of production, notably in labour and in overheads, and by the efficient organization of services, using local road hauliers or personally-owned trucks and making the maximum use of return cargoes to defray costs. The emphasis had altered from rail to road hauls which provided fast, direct and reliable service, particularly with the progressive improvement in the major road links to the south. In this, the completion of the Forth Road Bridge was a crucial factor reducing the marginality of Fife. It was especially relevant in improving personal communications essential to the more modern, growth-type industries introduced into the area.²³⁸ Moreover, the rising incidences of branch establishments reduced the need

to operate and maintain sales offices or work through agencies in the market area. All of these factors reduced the effects of geographical marginality in production in the Fife area but it must be noted that the improvements in transport links and the establishment of branch factories also had the disadvantage of slowing down the process of integrated development in the electronics growth sector. (p. 5.77).

In this writer's opinion, the structure of the "other major industries" in Fife constituted the weakest aspect of industrial development in the county. In this context a decided contrast existed between the older, more traditional industries and the industries introduced by the location of new establishments in the 1959-67 period. The structure of the former, emphasizing small, often family-owned, concerns and generally concentrating on small-scale, non-standardized production, was disadvantageous in that it prevented the achievement of economies inherent in large scale production and led to the general under-capitalization of the traditional industries in the county.²³⁹ However, this study of industries in Fife also indicated that the small-scale, family-operated structure possessed certain advantages. They exhibited a tie to the area and often a durability based on an apparent willingness not to measure success merely by the level of profits obtained²⁴⁰ (e.g. carpet manufacturing at Kirkcaldy; Smith-Anderson Ltd. in paper at Glenrothes). Moreover, while amalgamation-merger-takeover can be beneficial in terms of capital investment, greater efficiency, group research and development, it often leads to rationalization of productive capacity and the removal of decision-

taking from the smaller concerns. Thus, although the advantages of large-scale operation are obvious, amalgamation and takeover of the smaller industrial establishments in Fife could possibly result in a loss of these particular industries to the county. In contrast to the more traditional industries in Fife, the new establishments introduced the advantages of larger concerns backed by the benefits of major groups of international repute and of large-scale, standardized production. However, they were essentially branch establishments which removed the main decision-making from the area and along with the improvements in transport this structure was a factor in the slow development of industrial linkages which would have produced the maximum benefits for Fife. Nevertheless, despite these disadvantages, and given the expected continuation of growth trends in market, these new establishments provided stability and the seeds for expansion in Fife industry. The new concerns had committed themselves financially, (in premises, plant and machinery, and in the training of labour), to the area and this, together with their continued successful operation in the county, would reduce the above disadvantages emanating from their structure. In an overall assessment, the long-term future of industrial development in Fife lay in the build-up of larger-scale operation from the new establishments while aiding the older, traditional industries to become more efficient as the transition from the old to the new materialized. Thus, on balance, the structure of the new concerns, while not ideal, was preferred to that of the traditional industries.

Labour, its availability and general suitability,

represented the principal asset in Fife industry, particularly when compared with other areas of the United Kingdom. The degree of validity in this general statement varied from industry to industry and from the male to the female sector. Overall, it was more valid in reference to the newer than to the older industries since the new establishments provided conditions of employment superior to those in the traditional sector of industry. In terms of the availability of labour, skilled labour was at a premium in both the male- and female-employing industries, particularly in the female sector in which competition was more severe.²⁴¹ However, this shortage of skilled labour was not peculiar to Fife but relevant throughout the entire country. Moreover, time and efficient training programmes, used mainly by the newer establishments in the county, had ameliorated this situation slightly by 1967 (e.g. electronics p. 5.73). Without doubt, however, the main asset in Fife industry lay in the availability of trainable labour which, given time and training, had formed a suitable work force for the new industries which had located in the county. Again this varied from industry to industry and favoured the newer establishments whose better working conditions enabled them to pre-empt the more suitable elements of the applicants for employment. (e.g. traditional weaving compared with hosiery and other knitted goods and with electronics). This variation by industry in the availability of trainable labour affected the suitability of the work force. In general, the newer industries expressed greater satisfaction in this index than the older industries in terms of productivity, turnover and absenteeism. Overall, the labour situation in Fife in 1967

was assessed as satisfactory and an asset relative to other areas of the United Kingdom although doubts on the continuation of this evaluation existed. The female sector of the labour market in the county was becoming progressively tighter as emigration of the more vital elements of the population continued at a high rate, as activity rates rose, and as additional new establishments located in the area. The continuation of these trends would be most effective in pressuring the labour situation in the traditional sectors of industry due to their weak position in competition with the more attractive employment conditions afforded by the newer industrial establishments. However, despite the tighter situation in the supply of labour it must be noted that, relative to the rest of Scotland and to the United Kingdom as a whole, the activity rates in the county (Table 5.26) indicated that a pool of untapped labour still existed in the area.

In conclusion, the future potential in Fife industry lay in the strength and diversity of the newer industries and in their favoured situation in market demand, structure and labour which offset any minor disadvantage in their geographically-marginal location. The 1959-67 period in the industrial development of the county was one of transition in which the encouragement given to the location of new industries introduced into the economic structure was the key to the future. At the same time the older, traditional industries had to retain their slow growth or control the degree and rate of their decline to render the transition to a stronger economic base as painless as possible. The evidence of the 1959-67 period and of the potential for the future indicated that this task was in the process of being accomplished.

REFERENCES and FOOTNOTES

¹Scottish Council (Development and Industry), (1962), op. cit., para. 01.05.

²Footnote. Of the major industry groups in Fife in the 1959-67 period only textiles-clothing and, by 1967, engineering and electrical goods had any degree of diversification.

³Footnote. Its percentage share of the total insured population in Fife industry was 9.1 in 1959 falling to 8.4 in 1963 and 5.5 in 1967. (Data from Ministry of Labour, Edinburgh).

⁴Footnote. The peak in unemployment in 1964 coincided with the closure of an old-established, major employer in linoleum manufacturing located in Kirkcaldy. As a result of amalgamation with an English firm production was moved to the south nearer raw material supplies and market. (Interviews of Linoleum and Leather Cloth Manufacturers; Fife; 1966).

⁵Interviews of Linoleum and Leather Cloth Manufacturers; Fife; 1966.

⁶Footnote. The indices of production in Table 5.02 refer to Scottish output. However, the concentration of the Scottish industry in Fife make them valid as an indicator of production trends in the county. Employment in this industry in Fife in each year 1960-67 was over 90% of the total in it in Scotland. (Data from Ministry of Labour, Edinburgh. See also Table 5.03).

This concentration in Fife had been apparent from the early developments in this industry. (Smith, A., (1952), op. cit., p. 290).

⁷Footnote. Note, however, that in terms of impact on the local area the decline in Newburgh was important. The Kirkcaldy-Glenrothes area had other major industries and was able to attract new industries in contrast to Cupar which was not a development district until 1966.

⁸Footnote. Floorcloth was manufactured by Nairn's canvas sails factory by 1847. The establishment of Barry, Ostlere and Shepherd in 1864 was an offshoot from Nairn's. Tayside Floorcloth Company was formed in 1890 by a former employee of Barry, Ostlere and Shepherd. The number of firms in the Kirkcaldy area expanded to a maximum of eight in 1882 before amalgamation and takeover reduced them to two concerns, Nairn and Barry, Ostlere and Shepherd.

See Bowie, I., (1960), A Study of Industry in Kirkcaldy, Fife. Unpublished Undergraduate Dissertation, Department of Geography, University of Edinburgh, Edinburgh, pp. 4-6.

Smith, A., (1952), op. cit., pp. 286-290.

⁹Smith, A., (1952), op. cit., p. 288.
Interviews of Linoleum and Leather Cloth Manufacturers;
 Fife; 1966.

¹⁰Footnote. Following a merger with an English company, Barry, Ostlere and Shepherd moved production to the south. (ref. 4). A merger of Nairn's and Williamson's of Lancaster in 1963 led to the rationalization of production and the centralization of vinyl production in a projected new \$2 m. factory in Kirkcaldy. Government location of industry policies were effective in this decision.

"The group chose to expand in Scotland because of the development incentives here and because they were certain that the Government would refuse them an Industrial Development Certificate in Lancaster."

("Kirkcaldy Gets 700 Jobs in Switch To Vinyl." The Scotsman, Edition of February 1, 1967, Edinburgh. p. 15).

¹¹Footnote. Adaptation and innovation were apparent in the earlier developments of this industry in Fife, e.g. changeover from canvas sails to floorcloth; the adoption of inlaid linoleum and later printed felt base (Smith, A., (1952), op. cit.) (Bowie, I., (1960), op. cit.).

¹²Interview: Nairn-Williamson Ltd., Kirkcaldy, 1966.

¹³Interviews of Linoleum and Leather Cloth Manufacturers;
 Fife: 1966.
Tayside Floorcoverings Ltd., (1966), Report and Accounts.
 J. and G. Innes Ltd., Cupar.

¹⁴Interviews of Linoleum and Leather Cloth Manufacturers;
 Fife: 1966.

¹⁵Ibid.

¹⁶Interview: Tayside Floorcoverings Ltd., Newburgh, 1966.

¹⁷Interviews of Linoleum and Leather Cloth Manufacturers;
 Fife: 1966.

¹⁸Footnote. In linoleum production this company purchases the bitumen-saturated paper. In vinyl they buy the sheets and laminate them at Newburgh although the purchase of a P.V.C. Calendaring Plant in 1965 should overcome this shortcoming.

¹⁹"Resistance to the Stiletto Attack." The Scotsman, Edition of January 27, 1966, Edinburgh, p. 12.

Interview: Nairn-Williamson Ltd., Kirkcaldy, 1966.

²⁰Interview: Tayside Floorcoverings Ltd., Newburgh, 1966.

²¹Ibid.

²²Interviews: Nairn-Williamson Ltd. and Tayside Floorcoverings Ltd., Fife, 1966.

"Resistance to the Stiletto Attack." The Scotsman, Edition of January 27, 1966, Edinburgh, p. 12.

²³Scottish Council (Development and Industry), (1962), op. cit., para. 03.33.

²⁴Interview: Tayside Floorcoverings Ltd., Newburgh, (1966).

²⁵"Kirkcaldy Gets 700 Jobs in Switch to Vinyl." The Scotsman, Edition of February 1, 1967, Edinburgh, p. 15.

Footnote: The personal interview of Nairn-Williamson Ltd. was in November, 1966. The "impression" gained was that the future of the company would increasingly veer towards Lancaster. However, the proposed consolidation of vinyl production at Kirkcaldy as a result mainly of government policy prevented this trend from materializing. An additional 700 jobs would be available in Kirkcaldy from this rationalization.

²⁶Smith, A., (1952), op. cit., p. 280.

Footnote: Tullis-Russell and Co. Ltd., the largest employer in papermaking in Fife have been operating in the Markinch area from 1809. (Interview: Tullis-Russell and Co. Ltd., Markinch, 1966).

²⁷Footnote. In this respect of an expanding market the paper and board industry differs from linoleum and leather cloth in which competition was extreme in a rapidly declining market situation. (p. 5.09).

²⁸Footnote. A limited production of paper was carried on in Kirkcaldy by Nairn-Williamson in their linoleum industry. Production at Leven was small and was reduced by the closure of one firm in 1965.

²⁹Footnote. The firms interviewed refused to provide this data.

³⁰National Economic Development Council, (1963), Growth of the United Kingdom Economy to 1966. H.M.S.O., London.

³¹Footnote. The United Kingdom was a leading per capita consumer in paper. (National Economic Development Council, (1963), op. cit., para. 326.).

³²Footnote. It is assumed here that these trends also applied generally to Scotland and Fife. See assumption on p.5.14 and Wallace, C.G., (1965), "Papermaking Industry is Pulling its Weight", The Scotsman, Edition of June 17, 1965, Edinburgh.

³³National Economic Development Council, (1963), op. cit., para. 327.

³⁴Ibid., para. 346.

³⁵Footnote. This tariff protection had been halved by 1963. See National Economic Development Council, (1963), op. cit., para. 346.

³⁶Interviews of Paper Manufacturers: Fife: 1966.

³⁷National Economic Development Council, (1963), op. cit., para. 346.

³⁸Ibid., para. 333.

Footnote. The principal British export markets were in Commonwealth countries, notably Australia and New Zealand and in South Africa but these were restricted by quota systems and by the construction of capacity to supply their own markets. (National Economic Development Council, (1963), op. cit., para. 333).

³⁹Footnote. Despite growing competition in overseas markets some United Kingdom producers have established subsidiaries in overseas markets. (National Economic Development Council, (1963), op. cit., para. 334).

⁴⁰National Economic Development Council, (1963), op. cit., paras. 348-349.

⁴¹Wallace, C. G., (1965), op. cit.

⁴²Ibid. This trend was already in operation by 1965.

⁴³Footnote. This general evaluation was a personal assessment based mainly on information gained in interviews of the three main producers of paper and board in Fife. In 1966 these producers employed 75% of the total insured population in the industry. In addition, their products were similar to those in the two remaining concerns who refused to be interviewed. Overall, the five firms manufacturing paper and board in Fife operated seven mills (see Map 5.02).

⁴⁴Footnote. This was seen in the temporary cut-back in demand for industrial papers in the "economic squeeze" of 1966. Men freed from this sector in Tullis-Russell production at Markinch were able to be absorbed into other sectors of the firm. (Interview. Tullis-Russell and Co. Ltd., Markinch, 1966).

⁴⁵Footnote. Note that Tullis-Russell and Co. Ltd. had this specialization within an overall structure of diversification within the one firm.

⁴⁶Anderson, E.V., (1965), "Paper Bags at One Thousand a Minute." The Scotsman, Edition of June 17, 1965, Edinburgh.

⁴⁷Wallace, C.G., (1965), op. cit.

⁴⁸Footnote. This need for quality products in growing competition was stressed in interviews. e.g. "Commercial lines here are of high quality and as such are less affected by overseas competition which is of lower quality."
(Interview: Tullis-Russell and Co. Ltd., Markinch, 1966.).

⁴⁹Footnote. Despite minor fluctuations in industrial papers (e.g. see ref. 44) the expectations were for large scale increases in demand, e.g. in power and telephone insulating papers, capacitor tissues, photographic papers, (see Appendix 5.01). "Industrial paper production is geared to ever-expanding demand."
(Interview: Tullis-Russell and Co. Ltd., Markinch, 1966.)

The production of paper bags and sacks was very much of secondary significance in the immediate post war period but has risen dramatically since then. (Interview: Smith-Anderson and Co. Ltd., Leslie, 1966). (See also Anderson, E.V., (1965), op. cit.)

⁵⁰Bannatyne, C., (1966), "Papermakers Face Fierce Competition from Abroad." The Scotsman, Edition of August 23, 1966, Edinburgh.

⁵¹Wallace, C.G., (1965), op. cit.

⁵²Interview: Tullis-Russell and Co. Ltd., Markinch, 1966.

⁵³Interview: Smith-Anderson and Co. Ltd., Leslie, 1966.

⁵⁴Interview of a Manufacturer of Paper and Board, Fife, 1966.

⁵⁵Footnote. Smith-Anderson conducted their sales organization from Leslie: Tullis-Russell had sales offices in London, Birmingham and Manchester and a distribution depot at Newton-le Willows in Lancashire: Caldwell operated through the "Inveresk Group" sales organization with offices in London, Birmingham, Manchester, Glasgow and Dublin.

⁵⁶Interview: Caldwell Mill Ltd., Inverkeithing, 1966.

⁵⁷Interview: Tullis-Russell and Co. Ltd., Markinch, 1966.

⁵⁸Footnote: The two privately-owned, family concerns were Tullis-Russell and Co. Ltd. and Smith-Anderson and Co. Ltd. Tullis-Russell was the largest producer in Fife and had subsidiaries in England. Both had strong, local "roots" in the area.

⁵⁹Footnote. Transport costs were one factor in "marginal location". One firm quoted that the costs to transport their product to London were twice that of a competitor in Southern England. To date these costs had been absorbed in the overall costs of production but in rationalization they could become significant in any decision to continue production in Fife.

⁶⁰Footnote. This was also applicable to industries in Scotland other than paper and board.

⁶¹Footnote. Esparto papers were produced mainly at Inverkeithing and Guardbridge but even at Inverkeithing wood-pulp slightly exceeded esparto grass in quantity. (Interview: Caldwell Mill Ltd., Inverkeithing, 1966).

Tullis-Russell and Co. Ltd. now used esparto pulp brought in from a firm in Lancashire. They claimed this reduced costs from savings in labour, plant, time and wastage. Caldwell Mill Ltd. still prepared their own pulp from raw esparto grass, finding this marginally cheaper at the time of interview. However, the interviewer admitted that imported pulp would be the cheaper method in the near future. (Interviews: Manufacturers of Paper and Board, Fife, 1966).

⁶²Footnote. Tullis-Russell and Co. Ltd. claimed that they could produce as good quality paper from hardwood pulp as from esparto. (Interview: Tullis-Russell and Co. Ltd., Markinch, 1966).

⁶³Footnote. Of the firms interviewed Tullis-Russell and Co. Ltd. used rags and Smith-Anderson and Co. Ltd. waste paper. Caldwell Mill Ltd. used neither. (Interviews: Manufacturers of Paper and Board, Fife, 1966).

⁶⁴Interviews: Manufacturers of Paper and Board, Fife, 1966.

⁶⁵Footnote. Exports constituted a small proportion of overall total production although of the firms interviewed this proportion was higher than that of the United Kingdom (Table 5.08). Tullis-Russell exported c 20% of production, mostly in industrial papers; Smith-Anderson exported c 10%; Caldwell had "no direct exports".

⁶⁶Footnote. It was estimated that it required two tons of coal to produce one ton of paper. (Interviews of Manufacturers of Paper and Board, Fife, 1966).

⁶⁷Interviews of Manufacturers of Paper and Board, Fife, 1966.

⁶⁸Ibid.

Footnote. Tullis-Russell and Co. Ltd. employed a chemist working full-time on effluent disposal.

⁶⁹Bannatyne, C., (1966), op. cit.

⁷⁰Footnote. The impact was greater in firms which employed a higher than average female sector in the paper and board industry e.g. those manufacturing paper bags and sacks.

⁷¹Footnote. The new electronics industries were the principal competitors for available female labour. The situation was gravest in the Glenrothes area but was also relevant in Inverkeithing.

⁷²Footnote. One firm had introduced "piped music", gave "tea vouchers" for employees working overtime and held "open house" to remove the stigma attached to the industry in attempts to ameliorate this situation.

⁷³Scottish Council (Development and Industry), (1962), op. cit., para. 15.24.

⁷⁴Smith, A., (1952), op. cit., p. 252.

⁷⁵Footnote. Several other small boatbuilding firms are located around the Fife coastline, mainly in the East Neuk settlements, (Map 5.03), but they are insignificant in the overall pattern.

⁷⁶Records of H. M. Factory Inspectorate, Kirkcaldy, 1965.

⁷⁷Cairncross, A.K. and Parkinson, J.R., (1961), The Shipbuilding Industry, in Burn, D., (Ed.), The Structure of British Industry: A Symposium, National Institute of Economic and Social Research: Cambridge University Press, Cambridge: vol. 2, p. 98.

⁷⁸Smith, A., (1952), op. cit., p. 337.

⁷⁹Cairncross, A.K. and Parkinson, J.R., (1961), op. cit., p. 95.

⁸⁰Ibid., ps. 96 and 125.

⁸¹Interview: Burntisland Shipbuilding Co. Ltd., Burntisland, 1966.

See also "Lithgow's Chief Analyses Problems: Industry Lacks Protection", The Scotsman, Edition of February 3, 1966, Edinburgh.

"Unfair Competition". The Scotsman, Edition of July 31, 1962, Edinburgh.

⁸²Cairncross, A.K. and Parkinson, J.R., (1961), op. cit., p. 127.

⁸³Footnote. Standardized production was introduced in the United Kingdom during the First World War but "died away in the inter-war period". (Cairncross, A.K. and Parkinson, J.R., (1961), op. cit., p. 107).

⁸⁴Footnote. "The impact of the trend towards welded ships was comparable to that associated with the advent of the steel ship in the 19th. century." (Interview: Burntisland Shipbuilding Co. Ltd., Burntisland, 1966).

⁸⁵Footnote. For a discussion on the advantages of standardization and on the "welded" versus the "rivetted" ship see Cairncross, A.K. and Parkinson, J.R., (1961), op. cit., pp. 107-118.

⁸⁶Footnote. Work-force refers to all levels of labour from unskilled to management.

⁸⁷Cairncross, A.K. and Parkinson, J.R., (1961), op. cit., p. 121.

⁸⁸See e.g.

"Shipwrights Agree to Flexibility: Clyde's Lower Reaches Near End of Trade Demarcation: New Move Welcomed." The Scotsman, Edition of March 22, 1966, Edinburgh.

"Belfast Yard Sign Full Flexibility Agreement." The Scotsman, Edition of June 25, 1966, Edinburgh.

"Training the New Shipbuilders: Flexibility is the Aim of Fairfield New Scheme:" The Scotsman, Edition of June 27, 1966, Edinburgh.

"New Training Concept for Shipbuilders: Greater Versatility Sought:" The Scotsman, Edition of November 9, 1966, Edinburgh.

⁸⁹Cairncross, A.K. and Parkinson, J.R., (1961), op. cit., p. 102.

"Unfair Competition". The Scotsman, Edition of July 31, 1962, Edinburgh.

Footnote. This lack of subsidy was a factor in limiting the rate of the reorganization of British shipyards along modern, efficient lines.

⁹⁰Cairncross, A.K. and Parkinson, J.R., (1961), op. cit., p. 97.

⁹¹"U.K. Building More Ships for Export." The Scotsman, Edition of April 28, 1965, Edinburgh.

"U.K. Ship Orders 'Forced' Abroad: Effect of Subsidies for Foreign Contracts." The Scotsman, Edition of February 22, 1966, Edinburgh.

"Shipbuilding Credit Terms Criticised." The Scotsman, Edition of January 4, 1966, Edinburgh.

⁹²Ibid.

⁹³"Signals of Distress." The Scotsman, Edition of January 31, 1966, Edinburgh.

"Think Big - Or Go Under." The Scotsman, Edition of January 31, 1966, Edinburgh.

⁹⁴Interview: Burntisland Shipbuilding Co. Ltd., Burntisland, 1966.

See also Smith, A., (1952), op. cit., pp. 253-256.

⁹⁵Interview: Burntisland Shipbuilding Co. Ltd., Burntisland, 1966.

⁹⁶Footnote. Of the twenty-three ships completed in 1959-66, three were small tankers and the remainder "coasters", cargo and small cargo-passenger vessels.

Note that the failure to introduce a high degree of standardization in production was somewhat of a paradox since this company began with "standard-type" output in 1918 (Cairncross, A.K. and Parkinson, J.R., (1961), op. cit., p. 107).

⁹⁷Footnote. The size of vessels was limited to a maximum of 475 feet in length and a gross tonnage of approximately 17,000 tons.

⁹⁸Footnote. Other than Hall-Russell and Co. Ltd., Aberdeen, a subsidiary acquired in 1942, the Burntisland Shipbuilding Co. Ltd., had no direct ties to any other shipbuilding concern.

⁹⁹Footnote. In terms of investment, it was estimated that to modernize a medium-size shipyard in the 1950's would require from £ 1m. - £2m. (Cairncross, A.K. and Parkinson, J.R., (1961), op. cit., p. 117).

¹⁰⁰Interview: Burntisland Shipbuilding Co. Ltd., Burntisland, 1966.

See also "Streamlining Will Cut Costs at Paisley Yard." The Scotsman, Edition of January 31, 1966, Edinburgh.

"Think Big - Or Go Under." The Scotsman, Edition of January 31, 1966, Edinburgh.

¹⁰¹Footnote. It was claimed that the small scale of production at Burntisland had been an asset in this instance.

"Delays in delivery are commonplace as a result of the wide range of markets for these supplies. The suppliers cater for many industries other than shipbuilding. In this respect our smaller needs have been an asset on many occasions when the suppliers have managed to slip the order through. This would have proved almost impossible in larger orders."

(Interview: Burntisland Shipbuilding Co. Ltd., Burntisland, 1966). Note however that this conflicts with the findings of the "Geddes" report on British shipbuilding which states that small scale organization has been a weakness in that it gave the producer insufficient influence with main suppliers and customers.

¹⁰²Interview. Burntisland Shipbuilding Co. Ltd., Burntisland, 1966.

The problem of skilled labour was mainly in the "finishing trades" for which the need was less continuous. Several accepted work in house construction but most returned when employment became available at the shipyard.

See also Cairncross, A.K. and Parkinson, J.R., (1961), op. cit., pp. 119-120.

"Warning on Future of John Brown's". The Scotsman, Edition of January 29, 1966, Edinburgh.

"Shipbuilding Hardest Hit Industry by Shortage of Skilled Labour". The Scotsman, Edition of November 13, 1964, Edinburgh.

¹⁰³Interview: Burntisland Shipbuilding Co. Ltd., Burntisland, 1966.

The lack of alternative male employment tended to reduce the costs of labour relative to other, larger shipbuilding centres.

¹⁰⁴Ibid.

¹⁰⁵Ibid.

¹⁰⁶Ibid.

¹⁰⁷Ibid.

¹⁰⁸Footnote. Note that the growth in carpet manufacturing was an exception to this statement. (p. 5.54).

¹⁰⁹Footnote. While the textile and clothing sector was predominantly female-employing, the growth in male employment between 1959 and 1967 approximated to that of female employment. (Table 3.04). In absolute terms the increase in male employment exceeded that recorded in shipbuilding and marine engineering. (Table 3.04).

¹¹⁰Interviews of Textile Manufacturers, Fife, 1966-67.

See also Kemp, D., (1964), An Account of the Textile Industry in Dunfermline from 1850 to the Present Day. Unpublished Undergraduate Dissertation, Department of Geography, University of Edinburgh, Edinburgh.

"Changing Trends in Textile Industry". The Scotsman, Edition of September 22, 1966; Edinburgh.

¹¹¹Footnote. Note, however, that this contraction in employment was partly the result of increased mechanization and modernization in the industry. (see p. 5.46).

¹¹²Interviews of Silk Manufacturers, Fife, 1966-67.

¹¹³Footnote. This analysis was based mainly on personal interviews of half of the twelve principal firms engaged in weaving in Fife, the others either refusing to be interviewed or failing to reply to a request for interview. The six firms interviewed employed approximately 60% of the total insured population in weaving in 1966.

¹¹⁴Interviews of Weaving Manufacturers, Fife, 1966-67.

Footnote. This curtailment of exports constituted a major factor in the long-term decline in the United Kingdom textile industry which at its peak in 1912-14 exported about 87% to 90% of its production. (Furness, G.W., (1961), The Cotton and Rayon Textile Industry in Burn, D., (Ed.), The Structure of British Industry: A Symposium; National Institute of Economic and Social Research; Cambridge University Press: Cambridge, vol. 2, p. 184).

¹¹⁵Footnote. This was valid for all but one of the six firms interviewed. This concern manufactured textile cording for tyres produced on Clydeside by a factory in the same group. It represented an example of horizontal integration. (Interview: Dunlop Textiles Ltd., Dunfermline, 1967).

¹¹⁶Interviews of Weaving Manufacturers, Fife, 1966-67.

¹¹⁷Footnote. In this context, one firm interviewed complained bitterly of "periodic dumping practices by East European producers at ridiculously low prices." (Interview: R. Stocks and Co. Ltd., Kirkcaldy, 1967).

¹¹⁸Footnote. Two-thirds of the firms interviewed held that this statement on productivity was valid. All had experience of production elsewhere. The other two producers disagreed but only one had any experience of productivity in other locations. (Interviews of Weaving Manufacturers, Fife, 1966-67).

¹¹⁹Footnote. New industries which had located in the area included electronics, precision engineering, hosiery and knitwear and clothing, all of which used labour formerly employed in the traditional textile industries. (Interviews of Industrialists, Fife, 1966-67).

¹²⁰Footnote. The textile industries of Dunfermline and Kirkcaldy depended on female labour drawn from the mining areas of west, central and east Fife. They provided a balance to the dominance of the heavy male-employing industries (coal, shipbuilding) in the area. (Chapter VI).

¹²¹Interviews of Weaving Manufacturers, Fife, 1966-67.

¹²²Interview of a Weaving Manufacturer, Fife, 1967.

¹²³Footnote. This shortage of skilled labour was held to be the main factor in the underutilization of loom capacity in firms concentrating on higher quality products. However, in lower quality production declining demand and increasing competition were more important. (Interviews of Weaving Manufacturers, Fife, 1966-67).

¹²⁴Footnote. This viewpoint on productivity was not unanimous, (see ref. 118) but it was significant that the firm which disagreed with the statement and which had experience of production in other locations, laid down a strict code of conduct expected from its employees; it did not tolerate habitual absenteeism; it did not re-employ anyone who had been dismissed or had left to work for another firm. Moreover wages were slightly above the average for textiles in the area and labour relations were described as "excellent". It was not surprising that in this firm "turnover was low, absenteeism manageable and the availability and suitability of employees acceptable." (Interview: Dunlop Textiles Ltd., Dunfermline, 1967).

¹²⁵Footnote. Modern factory production in weaving in Fife dated from the early 19th. century and had been characterized by high quality labour as witnessed by products such as fine linen damasks and later silk manufactures. Indeed the availability of skilled labour was an important factor in the location of the silk industry in Dunfermline in the interwar period. Silk manufacturing in Fife was established by Swiss concerns to overcome duties on silks imported into the United Kingdom and the Dunfermline location, though removed from the principal markets in England, was chosen to utilize the "available, quality-conscious labour force and premises freed by the contraction of the linen industry in the area". These "pulls" of labour and space were heightened by the existence of quick, reliable, and efficient rail services to the south. (Interviews of Weaving Manufacturers, Fife, 1966-67). (See also Kemp, D., (1964), op. cit., p. 25).

¹²⁶Footnote. It was stressed in interviews that weaving in Fife still possessed a labour force skilled in the industry and that the shortage of skilled labour was no worse, and was possibly better, than at other locations in the United Kingdom. (Interviews of Weaving Manufacturers, Fife, 1966-67).

¹²⁷"Fife workers get bonus for recruiting." The Scotsman, Edition of August 30, 1966, Edinburgh.

¹²⁸Footnote. "Training with Nellie" was a system whereby recruits to the industry were placed with an experienced weaver to acquire the skills of weaving by observation and practice. It had obvious shortcomings and depended on the ability of "Nellie" as a teacher. The establishment of formalized instruction in training schools was expected to remove these shortcomings and to enable a more rapid assessment of recruits having the potential to become efficient weavers and to provide these recruits with a more thorough grounding in the art and skills of the operation.

¹²⁹Footnote. This assessment of market varied with the product e.g. silk manufacturers held that an expanding market for higher quality silk products was available but the shortage of skilled labour had curtailed any increase in their production to serve this market.

¹³⁰Footnote. In this context one firm estimated it would be necessary to revert to a three-shift system including an all-male night shift to make the maximum use of machinery. The shortage of skilled labour and the local attitude that "weaving is not a man's job" effectively vetoed this plan.

Note that while increased automation aided the shortage of skilled labour by enabling each weaver to operate a larger number of looms, it raised the skill required by the operators.

¹³¹Footnote. This conversion to automated production was most effective in silk manufacturing which was better suited to faster and standardized production. However, in other sectors of the industry some firms found it difficult to retain quality at faster speeds. (Interviews of Weaving Manufacturers, Fife, 1966-67).

¹³²Footnote. The sizes of the 17 establishments engaged in weaving in Fife in this period ranged from approximately 5 employees to c 350. Two employed between 0 and 50, six between 51 and 100, four between 101 and 200 and the remaining five over 201. Twelve of these establishments were either privately - or family-owned concerns. (Interviews of Weaving Manufacturers, Fife, 1966-67).

¹³³Footnote. see e.g.
"Textile Merger Proposal". The Scotsman, Edition of November 29, 1966, Edinburgh.
"£1.2m. cash deal in textiles". The Scotsman, Edition of February 14, 1967, Edinburgh.

¹³⁴Footnote. Operation through agencies reduced the direct contact important in the sales of consumer goods. In addition, one Fife producer lost a market in Scandinavia because the purchasers refused to buy through agencies and the company considered that the establishment of a sales office in the area was not economically justifiable. (Interview: W. Lumsden and Sons Ltd., Kirkcaldy, 1967).

¹³⁵Interview: R. Stocks and Co. Ltd., Kirkcaldy, 1967.

¹³⁶Footnote. The degree of difficulty in this varied with the value of the product, the proportionate costs of transfer being higher in lower value goods.

One firm estimated that transport costs to market amounted to approximately 2½% of total sales value. This was held to be "considerable". (Interview: W. Lumsden and Sons Ltd., Kirkcaldy, 1967).

¹³⁷Footnote. Most firms had changed from rail transport to cheaper, quicker, more reliable and assured services by road. They favoured local contractors who provided efficient services and who were willing to haul smaller loads. (Interviews of Weaving Manufacturers, Fife, 1966-67).

¹³⁸Records of H. M. Factory Inspectorate, Kirkcaldy, 1965.
Fife County Council Planning Department, Cupar, 1965.
Interviews of Hosiery and Other Knitted Goods Manufacturers, Fife, 1966-67.

Footnote. Only one firm (Lyle and Scott Ltd.) which was established at Rosyth in 1962 could be termed medium-sized and in 1966 employed over 400. None of the others exceeded 50 employees.

¹³⁹Footnote. E.g. The growth in Dunfermline-Inverkeithing and in Leven (Table 5.13) was the result of the location of new factories.

¹⁴⁰Footnote. The statistics in this table refer to sales in the home market and thus underestimate the total demand especially in the knitwear section where exports account for a sizable proportion of total production.

See e.g. "Knitwear firm exports 90 per cent of output."
 The Scotsman, Edition of June 27, 1967, Edinburgh.

"Enormous advance in cashmere production". The Scotsman, Edition of September 22, 1966, Edinburgh.

¹⁴¹Footnote. Raw materials were mainly spun yarns from Ayrshire, the Borders, Alloa and Dundee.

¹⁴²Footnote. Exports represented 20% of production of gents' underwear with Sweden the principal recipient. In knitwear the proportions exported varied from firm to firm in a range from 15% to 90% but on average it was estimated that just under one-half of total production was sent overseas with North America, Scandinavia and West Europe the principal markets. (Interviews of Hosiery and Other Knitted Goods Manufacturers, Fife, 1966-67).

¹⁴³Footnote. The growth recorded in this sector in Fife between 1959 and 1967 was the result of the location of new establishments which employed c 550 of the total of 679 in the industry without which the industry would have shown a minor decline in employment. (see Table 5.13).

¹⁴⁴Footnote. These conditions of employment included high wages, a 4½ day-week, subsidized travel to work and "piped" music. (Interview: Lyle and Scott Ltd., Rosyth, 1967).

¹⁴⁵Interviews of Hosiery and Knitted Goods Manufacturers, Fife, 1966-67.

¹⁴⁶Footnote. Growth in production in Fife was confirmed by a personal interview of the firm concerned. (Interview: J. Meikle and Co. Ltd., Kirkcaldy, 1967).

¹⁴⁷Interview: J. Meikle and Co. Ltd., Kirkcaldy, 1967.

¹⁴⁸Footnote. Production at Kirkcaldy was for the wholesale English market which took 85% of the output. Competition had excluded the London area and most was sold in the large provincial centres. Exports accounted for the remaining 15% with Germany the principal source. The German market had been gained early by the firm and, although competition was severe and increasing, the company, by concentrating on modern design and good service, was retaining its share in this market. (Interview: J. Meikle and Co. Ltd., Kirkcaldy, 1967).

¹⁴⁹Footnote. The company have acquired a machine for the production of tufted carpets but it was stressed in the interview that "this is only an insurance policy in case they are forced into this production. The emphasis is on all-wool carpeting." (Interview: J. Meikle and Co. Ltd., Kirkcaldy, 1967.)

¹⁵⁰Footnote. Note that this trend in the prices of synthetic fibres contrasted with those in the natural fibres, especially wool, used in the industry.

¹⁶⁰Footnote. These steps included regular journeys to England, Germany and North America and to the establishment of a design section at Kirkcaldy.

¹⁶¹Footnote. In 1967, the company was completing the installation of several new looms capable of weaving wider carpet widths and hoped that this would expand production. In addition an extension to be used as a despatch area had been recently constructed.

¹⁶²Footnote. This was apparent in a tour of the factory.

¹⁶³Footnote. The company claimed that it was "sufficiently large and viable to be able to finance the projects they desired." Moreover, in this context it was stated that "they have and will continue to resist amalgamation and merger which would remove policy decisions from the area." (Interview: J. Meikle and Co. Ltd., Kirkcaldy, 1967).

¹⁶⁴Footnote. The other three were in sections attached to carpetmaking, linen and union fabric weaving and rope-making respectively and their future prospects were closely linked to these industries.

¹⁶⁵Interview: Forth and Clyde Roperie Ltd., Kirkcaldy, 1967.

¹⁶⁶Interview: Tay Spinners Ltd., Glenrothes, 1967.

¹⁶⁷Ibid.

Footnote. The competition in synthetic yarns was mainly from England and Northern Ireland.

¹⁶⁸Interview: South Mills (Flax) Ltd., Leven, 1967.

¹⁶⁹Footnote. Competition from continental Europe was from areas producing the actual raw materials for this industry, flax from Belgium and France and hemp from Italy. (Interview: South Mills (Flax) Ltd., Leven, 1967).

¹⁷⁰Interview: Tay Spinners Ltd., Glenrothes, 1967.

¹⁷¹Ibid.

Footnote. The company attributed the suitability of labour to its emphasis on male employees in an area where male labour was readily available. Males represented two-thirds of total employees in the firm.

¹⁷²Interview: South Mills (Flax) Ltd., Leven, 1967.

¹⁷³Interviews of Spinning Manufacturers, Fife, 1967.

¹⁷⁴Footnote. In this investment, government grants (p. 2.23) were "valuable but secondary to the need to keep up with trends and to improve efficiency." (Interviews of Spinning Manufacturers, Fife, 1967).

¹⁷⁵Footnote. This change in emphasis to dresses, lingerie and infants' wear strengthened the clothing industry in Fife since sales in this sector were rising steadily throughout the period. (Table 5.21).

¹⁷⁶Footnote. Five new clothing establishments located in Fife between 1962 and 1966, one in weatherproof outerwear near Dunfermline which revived this activity in the area and four in dresses, lingerie and infants' wear, one in Cowdenbeath and three in Kirkcaldy-Glenrothes, which were largely responsible for the expansion experienced in this sector of the clothing industry.

¹⁷⁷Footnote. This contrasted with the pre-1962 period when firms utilized available premises such as old schools and cinemas and the industry was grossly undercapitalized in machinery. Government incentives for new premises and plant and machinery were extremely important in this new trend towards higher efficiency. (Interviews of Clothing Manufacturers, Fife, 1967).

¹⁷⁸Interviews: Babygro' Ltd., Kirkcaldy, 1967.
Nelbarden Manufacturing (Scotland) Ltd.,
 Kirkcaldy, 1967.
Jeltekt Ltd., Halbeath, 1967.

¹⁷⁹Interviews of Clothing Manufacturers, Fife, 1967.
Footnote. Manufacturers stressed that while labour was available they seldom obtained suitable employees from the unemployed. Recruits were either from other industries or school-leavers.

¹⁸⁰Footnote. Clothing manufacturers in Fife generally required fewer and less-skilled employees than other textile industries in the county.

¹⁸¹Interviews of Clothing Manufacturers, Fife, 1967.

¹⁸²Footnote. Production in Fife emphasized the United Kingdom market with England taking the bulk of the output. However, most of the smaller firms produced for the Scottish market and one larger manufacturer in infants' wear exported c 20% of output. (Interviews of Clothing Manufacturers, Fife, 1967).

¹⁸³Footnote. Several firms were engaged in production solely for the Marks and Spencer Co. and were mostly used for output to meet local (i.e. Scottish) demands. (Interviews of Clothing Manufacturers, Fife, 1967).

¹⁸⁴Footnote. In Fife, the scientific, surgical and photographic instruments etc. industry was centred on the production of "high quality components for analytical and research instrumentation," which was closely associated with the electronics field. (Interview: Beckman Instruments, Glenrothes, 1967).

¹⁸⁵Footnote. The manufacture of scientific instruments and electronics was first introduced to Fife by Beckman Instruments and Hughes International (U.K.) Ltd., who located at Glenrothes in 1958 and 1959 respectively.

¹⁸⁶Footnote. It was rising market demand which motivated the search for new space and finally led to the location of new establishments in Fife. Engineering and electrical establishments constituted the largest group of industries introduced into Fife between 1959 and 1967 (Chapter VII).

¹⁸⁷"Hub of Electronics Industry' in Fife." The Scotsman, Edition of November 19, 1966, Edinburgh.

¹⁸⁸Footnote. Note that the growth in this sector as recorded by employment statistics was a gross underestimation of the expected expansion. (See Chapter III, ref. 27, p. 3.24).

¹⁸⁹Footnote. Several factors contributed to the accelerated rate of growth from 1963, notably the success of firms which had located in the earlier part of the 1959-67 period, the rising market demand and the tightening labour situation in other parts of the United Kingdom, the reduction of the effects of Fife's peripheral location with the opening of the Forth Road Bridge in 1964, the designation of Kirkcaldy-Glenrothes as a development district in 1963. All of these factors increased the rate of the location of new electronics establishments in Fife. (See Chapter VII).

¹⁹⁰Footnote. e.g. In this context, one major electronics firm interviewed stated that the authorities and people of Fife "didn't know what they had in this industry and how large it will become." (Interview: Elliott Automation Ltd., Cowdenbeath, 1967).

¹⁹¹Footnote. Innovation and invention, characteristics of the electronics industry and its development, were widening the scope of use of electronics and thus creating a wide market for the products of the industry. See e.g. "Watch Scotland Grow 1966: The New Skills"; The Scotsman, Edition of April 21, 1966, Edinburgh, pp. 9-16.

¹⁹²See also "Scots Electronics Industry Grows: Wide range of equipment." The Scotsman, Edition of July 27, 1965, Edinburgh. Offord, C.H., (1966), "Electronics - pacemaker of economic growth." The Scotsman, Edition of April 21, 1966, Edinburgh.

¹⁹³Footnote. The use of new, permanent accommodation was applicable to Elliott Automation at Glenrothes and Hillend, Andrew Corporation at Lochgelly and Philips Ltd. at Dunfermline. Extensions to premises included Elliott Automation at Cowdenbeath (+ 107,000 sq. ft.), Beckman Instruments (+ 50,000 sq. ft.) and Hughes International (+ 15,000 sq. ft.) both at Glenrothes.

¹⁹⁴Interviews of Local Authorities, Fife, 1966-67.

¹⁹⁵Baur, C., (1967), "Kirkcaldy growth project now in operation." The Financial Scotsman, Edition of July 19, 1967, Edinburgh.

¹⁹⁶Footnote. Interviews of the electrical establishments which located in Fife between 1958 and 1967 showed that 79% classed the availability of trainable labour as a major factor in their location decision. A further 14% claimed that available "trained" labour influenced their decisions. This 14% represented firms who located in Fife in 1966-67 and who expected to "poach" labour trained by others established in the earlier stages of the period. (Interviews of Electrical Goods Manufacturers, Fife, 1966-67).

¹⁹⁷Interviews of Electronics Manufacturers, Fife, 1967.
Footnote. By 1967 evidence was emerging that this situation in the supply of skilled labour was easing slightly. Firms reported a rising number of applications from Scots emigrés, some of graduate standing, and an increasing mobility of skilled labour in the Glenrothes area. In addition, one firm which located at Inverkeithing in 1967 based their decision on a survey indicating, among other things, that skilled labour could be "poached" from other electronics establishments in the area. Undoubtedly the training programmes initiated by the electronics companies were beginning to bear fruit although quantities of skilled labour remained in short supply.

¹⁹⁸Interviews of Electronics Manufacturers, Fife, 1966-67.
Note that one firm with experience in various parts of the world stated that "the female labour in Fife is the best in the firm's long experience in this business." (Interview: Beckman Instruments, Glenrothes, 1967).

¹⁹⁹Interviews of Electronics Manufacturers, Fife, 1967.

²⁰⁰Ibid.

²⁰¹Footnote. This trend was apparent by 1967 and the viewpoint of the entire electronics industry, and industry in general, was summed up by one manufacturer in the statement that

"The availability of female labour was the main attraction to locate in Fife and though we haven't met any major difficulty in recruiting labour, the numbers of applicants for work has fallen from hundreds in the earlier period to tens now."

(Interview: Hughes International (U.K.) Ltd., Glenrothes, 1967.

²⁰²Interviews of Industrialists, Fife, 1966-67.

Footnote. Most new firms in the area recruited a large proportion of their work force from new entries into the labour market or from other industries in the area.

²⁰³Footnote. The ready availability of housing, especially in Glenrothes New Town, was a major factor in attracting labour to Fife. It was expected that housing would continue to be a "pull" for labour in the post-1967 period. (Chapter VI).

²⁰⁴Footnote. e.g. Associated Electrical Industries Ltd.; Elliott Automation Ltd.; Beckman Instruments; Bourns Ltd.; Varian Ltd.; Hughes International (U.K.) Ltd. and its merger with E.M.I. Electronics Ltd. to form Emihus Ltd.

²⁰⁵Footnote. The earlier emphasis lay in the production of components but later developments such as those of Associated Electrical Industries and Elliott Automation (at Hillend) were related to the production of finished electronic products.

²⁰⁶Footnote. This weakness was applicable to electronics in the entire Central Belt of Scotland. Note that much of this paragraph refers not only to Fife but also to Central Scotland.

²⁰⁷Interviews of Electronics Manufacturers, Fife, 1967.

²⁰⁸"Microelectronics": The Scotsman, Edition of April 21, 1966, Edinburgh.

"New Factory to Bring 400 Jobs": The Dunfermline Press, Edition of February 4, 1967, Dunfermline.

"More than 250 New Jobs in Electronics, Elliott Automation's £500,000 Eastfield Expansion". Glenrothes Gazette, Leslie and Markinch News, Edition of March 2, 1967, Kirkcaldy.

²⁰⁹Footnote. This shortcoming in the degree of involvement in research and development was relevant to the entire electronics industry in Scotland. See e.g.

Kemp, D., (1967), "R. & D. Scotland has pioneering problems on the frontiers of science." The Financial Scotsman, Edition of February 15, 1967, Edinburgh.

²¹⁰"More than 250 New Jobs in Electronics, Elliott Automation's £500,000 Eastfield Expansion". Glenrothes Gazette, Leslie and Markinch News, Edition of March 2, 1967, Kirkcaldy.

²¹¹Footnote. Several electronics firms which located in Fife in the late stages of the 1958-67 period stated that the presence and success of other industries in electronics in the county was a factor in drawing them to the area. (Interviews of Electronics Manufacturers, Fife, 1967).

²¹²Milhau, J., (1956), op. cit., p. 349.

²¹³Footnote. Both the Scottish Council and the Scottish Development Department stressed the significance of improved transport in the development of Central Scotland. (see ref. 74: Chapter II). In this context it was noted that one major electronics industry stated that "without the Forth Road Bridge we would not have considered Fife as a location". (Interview of Associated Electrical Industries, Kirkcaldy, 1967). This view was applicable to most industries locating in the county (Chapter VII).

- 214 Interviews of Electronics Manufacturers, Fife, 1967.
- 215 Milhau, J., (1956), op. cit., p. 349.
- 216 Footnote. In this sector only one new establishment of the seven which located in Fife between 1958 and 1967 was predominantly female employing, the others were overwhelmingly male industries. (Interviews of Manufacturers of Other Machinery, Fife, 1966).
- 217 Interviews of Manufacturers of Other Machinery, Fife, 1967.
Information supplied by Fife County Council Planning Department, Cupar, 1967.
- 218 Footnote. The branch establishment in mining machinery located in Fife to 1958 to manufacture machinery suitable for use in the area's coal "growth industry". With rapid decline in coal-mining this market deteriorated but by concentrating on parts for assembly at the parent plant in Motherwell and by experimenting with sophisticated, automated production lines the plant at Glenrothes remained viable even with a restricted market. (Interview: Anderson-Boyes Ltd., Glenrothes, 1967).
- 219 Footnote. With the exception of the establishment in mining machinery, the market for engineering products manufactured in Fife was England especially from Manchester southwards. (Interviews of Manufacturers of Other Machinery, Fife, 1967).
- 220 Footnote. Most skilled labour in engineering was attracted into Fife from West Scotland, Dundee, England and overseas. This was especially valid in the earlier stages of the 1959-67 period but by 1967 the emphasis on training programmes had ameliorated slightly the situation in the supply of skilled labour. (Interviews of Manufacturers of Other Machinery, Fife, 1967).
- 221 Footnote. This was the result of the general decline of male-employing industries in the Fife area e.g. several firms employed ex-miners in semi-skilled and labouring employment. (Interviews of Manufacturers of Other Machinery, Fife, 1967).
- 222 Interviews of Manufacturers of Other Machinery, Fife, 1967.
- 223 Ibid.
- 224 Ibid.
- 225 Ibid.
- 226 Footnote. The expansion experienced in Fife in 1966-67 was due to growth in this industry in Dunfermline-Inverkeithing. This was likely to be the result of a new enterprise in the area but the writer does not have information on this.

227 Interview: Balfour Group, Leven, 1967.
 "Production was rising as a result of increasing mechanization, modernization and the more efficient organization of labour."

228 Interview: Balfour Group, Leven, 1967.

229 Footnote. Approximately 70% to 90% of the products were sold to the home market which emphasized Manchester and the Midlands of England. Raw materials were mainly from England for specialized steels and other auxiliaries and West Scotland for basic steels. (Interview: Balfour Group, Leven, 1967).

230 Footnote. The diversity in trends represented the results of the effects of the other elements mentioned.

231 Milhau, J., (1956), op. cit., p. 349.

232 Scottish Development Department, (1963), op. cit., para. 5.

233 Scottish Council (Development and Industry), (1962), op. cit., para. 01.05.

234 Footnote. This included industries which had located new capacity in Fife for which rising market demand for a prerequisite in the location decision process. (ref. 186).

235 Footnote. Rising market demand was extremely relevant in the slow growth in paper and board despite the fact that competition in this industry was severe. (p. 5.26).

236 Footnote. This was valid at the level of the industry group (e.g. linoleum compared with electronics) and within individual industries (e.g. weaving of silk compared with linen and union fabrics). Given a highly competitive market, the lower the value of the product the less competitive was the Fife producer (e.g. compare cheaper lines in linen and union fabrics with quality lines in paper and board). The costs of geographical marginality were much more significant in lower value products operating in severe market competition.

237 Scottish Council (Development and Industry), (1962), op. cit., paras. 08.36 - 08.41.

238 Footnote. As an example, Associated Electrical Industries stated that they would not have located in Fife without the Forth Road Bridge and that it was easier and faster to communicate personally from Kirkcaldy to London than from another branch plant at Hartlepoons to London. (Interview: Associated Electrical Industries, Kirkcaldy, 1967).

239 Footnote. Note, however, that exceptions existed to this generalized statement notably in such concerns as Nairn-Williamson Ltd. in linoleum, Tullis-Russell Ltd. in paper and board. Both were large employers and had invested in their respective activities. (pp. 5.04 - 5.12 and pp. 5.12 - 5.27 respectively).

²⁴⁰See also Scottish Council (Development and Industry), (1962), op. cit., para. 06.17.

²⁴¹Footnote. In the male sector a limited number of skilled personnel had been freed by the contraction in coalmining and linoleum manufacturing compared with the female labour force where the availability of skilled employees was affected by emigration of entire families, the influx of new female-employing industries and early marriage and pregnancy which increased the turnover of labour.

OTHER DISTRIBUTIONS RELEVANT TO DEVELOPMENT AND GROWTH
IN CENTRAL FIFE.

The programme for development and growth stressed the diversification and strengthening of the economic base of Central Scotland as a prerequisite for expansion (p. 2.29). Accepting this emphasis as valid, and recognizing the need for selectivity both in the areal focus and in the content of this investigation (p. 1.04), this thesis concentrated on the industrial base of Central Fife, the choice and the significance of the other elements being determined by the respective influence of each on industrial development in the area. The other elements selected as important in this context were labour, its availability and suitability; transport and communications; and physical decay and dereliction.¹ Each was a consideration in the assessment of the "total milieu" of Central Fife and pertinent to its evaluation as a growth area.

A detailed investigation of the availability and the suitability of labour was essential to any evaluation of industrial development in the Central Fife area between 1958 and 1967, and would remain so in the post-1967 period. The economic well-being of the area depended on the introduction of new growth-type industries (p. 3.64); and the availability of trainable labour proved a decided asset in the success achieved in this context to 1967.² Similarly, with industries experiencing a decline in the supply of labour by

1967 and a continuing shortage of skilled labour (pp. 5.92 - 5.93), an examination of the quantity and the quality of labour in Central Fife, and of the ability of this area to attract labour to it, was necessary for any assessment of future growth. Quantitatively, this examination involved travel-to-work patterns affecting industry in the area, population trends, unemployment as a source of labour, activity rates relative to those in the United Kingdom, and the role of housing as an attraction to labour from outwith Fife County. Qualitatively, it was concerned with the suitability of the available supply of labour to form an efficient work force, an assessment which considered the existing level of skills in the area, labour turnover and absenteeism, labour relations, productivity, and the methods used to train labour.

The second distribution selected as significant to industrial development in Central Fife was transport and communications, notably road transport which was the medium most patronized by industries in the area.³ While trainable labour attracted new industries to Fife, improvements in road linkages within Central Scotland and with England rendered the county sufficiently accessible to allow this asset of labour to be a more effective force in attracting these new industries. Although most of these improvements took place outwith Fife, only the Forth Road Bridge having a direct and notable impact on the county, they facilitated the movements of goods and people, the Bridge itself bringing Fife into the pattern of the national transport network, thus greatly enhancing the area's prospects for industrial expansion. In this context, the significance of the Forth Road Bridge can never be overstressed, particularly its effectiveness

in linking Fife with Edinburgh Airport which greatly facilitated personal mobility between the county and the London area, an ease of movement which, at the management level, proved critical in the decisions to locate new industries in the county.⁴

The third distribution considered relevant to industrial development in Fife was less direct and less effective than the others. This distribution was the prevalence of physical decay and dereliction concentrated in certain localities within the Central Fife area and identified as an obstacle to be overcome in creating a climate suitable for industrial expansion (p. 2.22). Coalmining was a significant contributor to this blight, a situation rendered more excessive by the dense pattern of collieries and small settlements conditioned by this industry's operation in Central Fife. However, by 1967, the local authorities had attacked this problem and were in process of providing a much improved physical environment in this area. While this writer considers that dereliction as an obstacle to industrial location in Central Fife has been overstated, nevertheless, the improvements effected by the local authorities have given the basis for a landscape more amenable to industrial development in the future, particularly when the spread effects of polarization at Glenrothes materialize. Moreover, as a measure to improve social amenity, the policies and actions of the local authorities in this context must be highly commended.

Overall, of the three distributions selected as relevant to industrial development in Central Fife and to its evaluation as a growth area, labour was the most significant and, with transport and communications, had a direct impact on industrial development in

the area. By comparison, physical decay and dereliction was a negative factor in the area's development, an obstacle to be removed to improve the physical environment and thus indirectly assist in the creation of a "milieu" conducive to growth.

Labour Supply in Fife: 1959-67.

The supply of labour for Fife industry depended on trends in the patterns of daily travel-to-work, of population, of unemployment, of activity rates, and of the provision of housing for labour in the county (p. 6.02); and each of these distributions identified the industrial arc as the favoured zone in labour availability in Fife. Investigation of these various patterns showed that between 1959 and 1967 the labour supply in Fife was sufficient to meet demand, but also that increases in net loss in daily labour movements to areas outwith the county and trends indicating a declining and ageing population had effectively narrowed the gap between supply and demand. However, the labour situation in Fife should remain favourable to industrial expansion at least until 1971, the position after that date being less certain.

Daily Travel-to-Work and Labour Supply.

The successful application of the growth area concept to Central Scotland was expected to increase the geographical mobility of labour throughout the region, especially in the vicinity of the designated growth areas (p. 2.21); and the Central Scotland programme included measures to facilitate this mobility (pp. 2.21 - 2.22). The analysis of daily travel-to-work estimates in Fife between 1959 and 1966 verified this expectation of increased movement, particularly over shorter distances within the county, Kirkcaldy-Glenrothes and

Dunfermline-Inverkeithing attracting a growing number of employees mostly from the labour "reservoirs" of Cowdenbeath-Burntisland and Leven; and, together with data on population and unemployment, these estimates emphasized the industrial arc of the county as the area of maximum potential in labour availability in Fife.

The analysis of net total daily travel-to-work revealed several important aspects of labour mobility in Fife during the 1959-66 period (Table 6.01). Firstly, it indicated clearly the growing status of Dunfermline-Inverkeithing and Kirkcaldy-Glenrothes⁵ as areas of labour attraction and of Cowdenbeath-Burntisland, Leven, and North and East Fife as labour catchment areas. Secondly, the trends between 1959 and 1966 showed a marked numerical increase in the mobility of the county's labour force, an increase which strengthened the pattern referred to above. Thirdly, the daily movements of labour were over short distances,⁶ but by 1966 indications of mobility over longer distances were apparent.⁷ Fourthly, by 1966 the growing geographical mobility of labour in Fife had reduced the county's potential labour force in terms of net exchange with areas outwith the county limits. Finally, and relevant to the aggregation of areas suitable for assessing population and unemployment as sources of labour and potential labour, the net daily travel-to-work estimates emphasized movements within the industrial arc and showed clearly that any investigation of the supply of labour in Fife had to concentrate on this area.

The examination of daily labour movements in Fife indicated both similarities and differences between the patterns of male and female mobility (Tables 6.02 and 6.03). Notably, daily movement in the male sector exceeded that in the female, both numerically and

geographically, although increasing mobility was apparent in both sectors by 1966: the spatial pattern was also different, Dunfermline-Inverkeithing being the principal receiving area for male labour compared with Kirkcaldy-Glenrothes for female labour. Both sectors experienced changes in response to changing employment opportunities in the county, changes which modified the travel-to-work patterns in the area.

Dunfermline-Inverkeithing was the main receiving area of male labour in Fife and, as a result of a marked increase in movement into the area, notably from Cowdenbeath-Burntisland and from areas outwith Fife, it showed a substantial rise in net gain in this index from 1959 to 1966 (Table 6.02; Map 6.01), the expansion of mining and quarrying, shipbuilding and marine engineering, and engineering (pp. 3.46 - 3.47) being significant in this trend. In 1966, this area attracted male labour from every other part of Fife, especially from Cowdenbeath-Burntisland and from outwith the county⁸ (Table 6.02; Map 6.02). However, since significant growth in male employment was not envisaged in the post-1967 period unless new industries were introduced (p. 3.47), the rate of increase in the daily movements of males into this area was expected to slacken considerably.⁹ Nevertheless, Dunfermline-Inverkeithing would retain its status as the area of principal net gain in male labour mobility in Fife.

Leven, the only other receiving area of male labour in Fife in the 1959-66 period, was much less significant in this index than Dunfermline-Inverkeithing, and, as a result of increased mobility out of the area, declined in status from 1959 (Table 6.02). Spatially, movements into and out of Leven were confined virtually to Kirkcaldy-Glenrothes with the trend from 1959 favouring that area (Table 6.02; Map 6.01). By 1966, the daily movements of male employees to and

from Leven almost balanced (Map 6.02), and with coalmining in the area declining and new male-employing industries in Kirkcaldy-Glenrothes expanding, the balance will favour the latter area in the post-1966 period.

The other three areas of Fife, Cowdenbeath-Burntisland, Kirkcaldy-Glenrothes and North and East Fife served as "reservoirs" of male labour for other parts of the county and for areas outwith the county limits (Table 6.02). Cowdenbeath-Burntisland was the most significant of these sources and as a result of the virtual demise of coalmining in Cowdenbeath, of the fluctuations and general instability of shipbuilding in Burntisland, and of the inability to attract any substantial male-employing industry, this area experienced a marked increase in the daily movement of males out for employment (Table 6.02). With further contraction of male employment expected and with little hope of attracting new industries, Cowdenbeath-Burntisland will continue to supply labour to other areas.

Kirkcaldy-Glenrothes was noted for its increasing attraction of male labour as new industries located in the area from 1958 and expanded their employment capacities. The daily movements of males into and out of this area almost balanced by 1966, only an increase in the net loss to areas outwith Fife preventing the achievement of this equilibrium (Table 6.02; Map 6.02). By 1966, the net loss to Leven in this index had been practically eliminated, the net gain from Cowdenbeath-Burntisland increased, and stability retained in exchanges with Dunfermline-Inverkeithing. The continued growth in male-employing industries will favour the Kirkcaldy-Glenrothes area and although the total impact of labour mobility will be underestimated in daily travel-to-work estimates due to employees taking up permanent

residence in the new town, an increase in daily movement of males into this area is confidently expected.

The analysis of male daily travel-to-work estimates for North and East Fife revealed a source area of male labour, but one which had little effect on Fife industry (Table 6.02). In an overall stability in net daily movements of males in this area, movements in which the increase in intake was slightly exceeded by those travelling out for employment, the links were substantially with Dundee (Table 6.02; Map 6.02), and while trends between 1959 and 1966 suggested little change for the post-1966 period, an increase in movement from Cupar and the East Neuk into Kirkcaldy-Glenrothes was probable.

Daily travel-to-work for females was numerically less than in the male sector; and the geographical movements also differed (p. 6.05). Notably, Kirkcaldy-Glenrothes was the principal receiving area with Dunfermline-Inverkeithing secondary in importance to it; and Cowdenbeath-Burntisland and Leven were the main source areas of female labour in Fife in this index, with North and East Fife again linked more with Dundee than with other parts of the county (Table 6.03).

Kirkcaldy-Glenrothes was the main receiving area of female labour in Fife throughout the 1959-66 period, growing in status as the new female-employing industries introduced from 1958 increased their employment capacities and attracted labour from the surrounding areas¹⁰ (Table 6.03; Map 6.03). In addition, the net loss to areas outwith Fife was reduced between 1959 and 1966, again as a result of increasing opportunities for female employment in the local region. Spatially, the daily net movement of female labour was mainly from

Leven and from Cowdenbeath-Burntisland (Table 6.03; Map 6.04), and with the expectations of continued expansion in female-employing industries, the Kirkcaldy-Glenrothes area will increase its net gain in female daily travel-to-work, mainly from the areas contiguous to it.

Dunfermline-Inverkeithing was the other area in Fife with a net gain in daily movements of female labour but, unlike Kirkcaldy-Glenrothes, this net gain declined between 1959 and 1966 as a result of an increased movement of females out to areas outwith the county limits¹¹ (Table 6.03; Map 6.03). In 1966, the principal source of female labour was Cowdenbeath-Burntisland, a gain offset in part by a net loss to areas south of the Forth (Table 6.03; Map 6.04). This area will continue to receive female labour from Cowdenbeath-Burntisland in the post-1966 period, but the accelerated loss to the Edinburgh area will partly offset this net gain unless regulated.

Cowdenbeath-Burntisland, Leven, and North and East Fife were thus the source areas of female labour in Fife between 1959 and 1966 (Table 6.03). Cowdenbeath-Burntisland, notably deficient in female employing industries, experienced the largest net loss in the daily movements of female labour in the county, a net loss which increased with greater movements out of the area, mainly to Dunfermline-Inverkeithing (Map 6.03) but, by 1966, also to Kirkcaldy-Glenrothes and to areas outwith Fife, notably Edinburgh and Perth¹² (Table 6.03; Map 6.04). With little change expected in female employment in the area in the post-1966 period, Cowdenbeath-Burntisland will continue to be a "reservoir" of female labour for Dunfermline-Inverkeithing and Kirkcaldy-Glenrothes.

The analysis of female daily travel-to-work estimates for

Leven indicated an increase in the net loss of female labour in this index from 1959 as a result of a rising daily movement to Kirkcaldy-Glenrothes (Table 6.03; Map 6.03), and with growth in female-employing industries in that area, the status of Leven as a source of female labour in Fife will continue into the post-1966 period (Map 6.04).

The daily mobility of female labour in North and East Fife was similar to that in the male sector. Over the 1959-66 period an increase in movement into this area was exceeded slightly by those travelling out for employment, mainly to Dundee (Table 6.03; Map 6.03). This linkage with Dundee reduced the value of North and East Fife as a source of female labour for industry in Fife (Map 6.04), and the pattern was not expected to alter radically in the immediate post-1966 period although the possibility of increased movement from Cupar and from the East Neuk into Kirkcaldy-Glenrothes cannot be overlooked.

In summary, the pattern of labour mobility in Fife between 1959 and 1966 stressed short distance movements within the industrial arc of the county, but with increasing daily travel-to-work over longer distances apparent by 1966. This growing mobility was relevant to both male and female labour and augured well for industrial development in Fife. Labour was obviously willing to commute for employment and could evidently be attracted to points of industrial expansion in the county. However, this increased mobility also had the detrimental effect of reducing the potential supply of labour for Fife industry as a result of the rise in net losses in exchanges with areas outwith the county, notably with Edinburgh and with Dundee, a trend which was especially effective in the female sector. Finally, the modifications in the spatial pattern of daily movements of labour affecting Fife were in response to changes in the pattern of industry

within the county. Industrial expansion in Dunfermline-Inverkeithing and in Kirkcaldy-Glenrothes enhanced the status of these areas as receiving zones of labour in Fife, particularly of male labour in the former and female labour in the latter: conversely, the decline of industry in Cowdenbeath-Burntisland and in Leven increased their roles as areas of surplus labour. These trends were in keeping with the polarization process in which growth points attract labour to them from the surrounding areas, and the available evidence suggested that the 1966 pattern of daily mobility of labour would be strengthened with increasing movement into the areas of industrial expansion in the county.

Population and Labour Supply.

The designation of Central Fife as a growth area was based on "social potential in an area of substantial population and with considerable scope for industrial expansion."¹³ A statistical analysis of population in Fife during the 1951-66 period substantiated this assessment but also revealed trends indicating potential problems in population as it affected the supply of labour in the county.

The examination of population in Fife between 1951 and 1966 provided insight into several aspects significant to the supply of labour in the county. Firstly, it verified the choice of the growth area in the industrial arc which contained a large proportion of the county's total population (Table 6.04; Map 6.05) and of its working age population (Table 6.05; Map 6.06), a concentration of human resources most evident in the zone from Dunfermline Burgh through Lochgelly District of County to the Kirkcaldy area.

Secondly, although population in Fife expanded between 1951 and 1966, changes during this period indicated two distinct

phases pertinent to the evaluation of population as a source of labour in the area. The first phase from 1951 to 1961 was characterized by a slow growth of population, mainly as a result of growth in the female sector (Table 6.06). A high natural increase,¹⁴ which offset a substantial loss of population as a result of net emigration,¹⁵ was extremely significant in this slow growth trend. The spatial distribution of these changes showed that growth was considerable in the Kirkcaldy region, (especially in Kirkcaldy District of County which contained the new town at Glenrothes), and important in the Dunfermline area; in contrast, Lochgelly District of County experienced a marked decline in population during the 1951-61 period (Table 6.06; Map 6.07). Net migration, the pattern of which is shown in Table 6.07 and in Map 6.08, was crucial to these changes, only Kirkcaldy District of County experiencing net immigration, with net emigration being notably high in both Lochgelly and Wemyss Districts of County.

The potential problems indicated in the 1951-61 phase materialized in the 1961-66 period. Population in Fife declined by 6,360 (-2.0%), mainly in the male sector (-4,640: -2.9%) a decline in which minor growth in Cupar and in St. Andrews, and the continued expansion in Kirkcaldy District of County, failed to compensate for the losses in every other area, including the large burghs of Dunfermline and Kirkcaldy (Table 6.06; Map 6.09). Net emigration, (in which the rate was more than double that of the 1951-61 period (Table 6.07)), was the principal reason for this overall decline in population, but it was aided by a lower natural increase¹⁶ as a result of a falling birthrate from 1959 (Table 6.08). The distribution of net migration between 1961 and 1966 was limited

by the content of the 1966 sample census,¹⁷ but was sufficient to indicate the effects of net emigration in the industrial arc of the county, this despite the introduction of new industries into that area (Table 6.09). A continuation of the 1961-66 trends would have serious effects on the supply of labour to meet the expected increase in industrial development in the county in the post-1966 period.

Thirdly, the population of Fife was ageing (Table 6.10), the statistics showing an increasing proportion of the population in the over-44 age group in every area.¹⁸ This trend was especially relevant in the 1961-66 period when the birth rate declined and net emigration rose rapidly. The age-selective nature of migration was a critical factor in this trend since it removed a substantial number of the younger, procreative elements of the population (Table 6.07), a development which, in time, would reduce the birth rate in the area and so further aggravate the trends towards an ageing and declining population.

Fourthly, and directly relevant to the evaluation of population as an index of the supply of labour, the absolute numbers in the working age groups (15-64) in Fife declined in the 1951-66 period as a result of contraction between 1961 and 1966 (Table 6.11). As stated previously (p. 6.11), the available labour force was concentrated in the industrial arc of the county, and this distribution was strengthened by the changes in the working age categories between 1951 and 1961 when this group in Fife increased by 1,710 (730 males and 980 females). However, as a result of high age-selective net emigration, this growth was considerably less than the total increase in population in the same period (Table 6.11). In terms of the distribution of changes, the expansion in the

Kirkcaldy area, (notably in Kirkcaldy District of County), and to a much lesser degree in the Dunfermline district, offset the decline in every other area, decline being especially high in Lochgelly District of County.¹⁹ From the information available for the 1961-66 period (Tables 6.09 and 6.11), it can be assumed that, except for the probability of continued growth in the working age population of Kirkcaldy District of County²⁰ and the possibility of a minor expansion in Cupar and St. Andrews, most areas experienced a decline in the 15-64 age group. Overall, in Fife between 1961 and 1966, the numbers in this age group fell by 3,490 (2,230 males and 1,260 females), representing more than half of the decline in the total population of the county in this period.

The implications of the above trends in population were critical in assessing the future supply of labour in Fife. The analysis indicated that the numbers in the working age groups in the county would decline further unless changes occurred in the component factors of population. In this, selective net emigration was most crucial since, by 1966, not only was it directly responsible for the decline of total population and more so of the working age population in Fife, but it was also a prominent force in reducing the birth rate and in speeding up the ageing of the population. A continuation of the high rate and age-selectivity of net emigration would critically reduce the supply of labour and in a long-term analysis would adversely affect the potential of the county for further industrial development.

Examination of the changes in the working age groups and the changes in employment between 1961 and 1966 verified the assertions of industrialists in Fife that labour had become progressively less available and that it could become a vital issue in the not-too-

distant future (p. 5.74). Comparing the working age population between 1961 and 1966 with a projected forecast for 1971, the supply of labour in Fife was declining, especially in the male sector (Table 6.12);²¹ and this estimated decline between 1966 and 1971, when considered against the expectations of increasing demand for labour,²² indicated a tightening of the supply of labour in the county. In this supply-demand situation the position in the female sector was graver than that in the male despite an estimated larger decline in the supply of male labour up until 1971: the demand for female labour would be much higher in this period.

In the female sector the estimated reduction in the working age population between 1966 and 1971 was approximately 700 (Table 6.12), but this would occur while the demand for female labour simultaneously accelerated. Female employment had risen throughout the entire 1959-67 period mainly as a result of substantial expansion in the secondary sector from 1963 (Table 6.13), an expansion which would undoubtedly accelerate as the new industries introduced between 1958 and 1967 increased their labour forces and as additional female-employing establishments located in the area. However, while this situation of rising demand and declining supply of female labour would unquestionably reduce the labour surplus in the area and increase the competition already felt by industry in 1967 (p. 5.93), the activity rates for females in Fife relative to those for Scotland and the United Kingdom showed that the area still possessed "underutilized" labour to combat these changing conditions. Much would depend on the ability of the industrialists to activate this under-used source to their advantage.

In the male sector, the estimated decline in working age

population between 1966 and 1971 was approximately 2,500 (Table 6.12), but the demand for male labour would be less severe than for female. Male employment in Fife had contracted markedly between 1959 and 1967 (Table 6.13) as a result of the decline in coalmining and in linoleum manufacturing. However, by 1966, indications existed that the rate of contraction was levelling out as the rapid rationalization of coalmining was carried through, as the decline in linoleum altered to a possible trend of minor growth, and as male-employing industries introduced in the 1958-67 period increased their employment capacities. Demand would increase until 1971, but it would be much less than in the female sector. Overall, although the surplus of supply over demand in male labour would be reduced in the 1966-71 period, labour would still be ample for industry in Fife at least until 1971, but unless changes occurred to reduce the rate of decline in the supply of males the situation would deteriorate in the post-1971 period when demand could exceed supply.

The second major implication of population trends in Fife as they affected the supply of labour was that the working-age population in the county was ageing as net emigration accelerated (Table 6.14).²³ The numbers in the 15-44 age groups in both the male and female sectors declined between 1961 and 1966 and it was estimated that this decline would accelerate in the 1966-71 period: conversely, although the growth in the 45-64 age groups was minimal between 1961 and 1966 it was expected to increase up until 1971.²⁴ In a longer term assessment a continued reduction in the birth rate and an accelerated age-selective net emigration would speed up this trend towards an older and less vital work-force. Without doubt, this would reduce the mobility (both inter-industry and occupational, and geographical) of the labour supply and would adversely affect

attitudes towards such critical needs as training and retraining to meet the changing demands of the newer industries essential to the well-being of the area.

Activity Rates and Labour Supply.

The above assessment of a less favourable situation in labour in Fife was based on changes within the county, but to place this element of industrial development into a more meaningful perspective it was necessary to compare the local trends with those in other areas, notably in Scotland and the United Kingdom. Analysis of activity rates for 1961 and 1966 indicated that, relative to these larger areas, Fife possessed a pool of untapped labour (Table 6.15). In the male sector the reduction of employment in Fife had increased this potential source of labour between 1961 and 1966, but the rapid increase in female-employing industries had effectively reduced the potentially favourable position held by the county in this sector in 1961. This writer estimates that these gaps in activity rates between Fife and the larger areas will be progressively reduced to 1971, particularly in the female sector where decline will be minimal in primary activity, and where growth will be substantial in secondary, and significant in tertiary, employment.²⁵ In the male sector, a continued decline in primary activity, but at a lower rate than in the 1961-66 period, and slow growth in both the secondary and tertiary sectors will result in a slower rise in activity rates than those in the female sector. However, overall, it is this writer's opinion that, relative to both Scotland and the United Kingdom in 1971, Fife will possess a considerable potential source of untapped labour, both male and female.

Unemployment and Labour Supply.

Any evaluation of the supply of labour in Fife had also to consider the levels of unemployment in the county. As a quantitative measure the suitability of the available statistical data on unemployment was such that the data could be regarded only as approximations (p. 3.03). Qualitatively, data were virtually non-existent and the validity of the assessment of the suitability of the unemployed depended on the subjectivity of this writer and, more so, of the industrialists interviewed in Fife.²⁶

In the context of labour supply, unemployment in Fife was considered a resource to be developed, particularly when assessed against the background of the increasing significance of labour as a factor in the location of industry and of labour shortages in other areas of the United Kingdom, especially in the Southeast Quadrant (p. 2.21). This view of unemployment as a resource accorded with the more positive approach to regional development adopted in the Central Scotland programme (p.2.26), and in this vein the registered unemployed in Fife were accepted as one indicator, albeit, in the light of the problems associated with unemployment and of the suitability of the unemployed for employment,²⁷ an approximate indicator of an available source of labour in the county.

The analysis of unemployment in Fife in the 1959-67 period revealed variations in time, in distribution throughout the county, and in the male and female sectors. In the male sector, the overall trend between 1959 and 1967 indicated an increase in the potentially available labour as shown by unemployment, a trend which masked a rapid rise to 1963 followed by a decline to 1966 with a tendency to increase again to 1967 (Table 6.16; Fig. 6.01).

Structurally, the trends in the primary, secondary and tertiary sectors conformed to those in total male unemployed, indicating general recession in 1963 and a minor slowdown in 1967 (Table 6.17; Fig. 6.02). In terms of potential labour supply, most of the unemployed were in the primary and tertiary sectors which reduced their degree of suitability for employment in manufacturing industry. Spatially, the industrial arc of the county, particularly the designated growth area, contained the vast majority of the male unemployed throughout the entire period. If unemployment represented a resource to be developed then industries depending on male labour in Fife were favoured by a location in the industrial arc from Dunfermline to Leven.

The analysis of female unemployment as a potential source of labour showed both contrasts and similarities to that of the male. Notably, the total female unemployed declined between 1959 and 1967 (Table 6.16; Fig. 6.01), mainly as a result of improvement in the tertiary sector (Table 6.18; Fig. 6.03). Unemployment in primary industry was virtually negligible but was much higher in secondary industry, indicating a more suitable resource for further industrial development than that in the male. In terms of similarities, the general trends conformed to those in the male sector but with less pronounced fluctuations; and spatially, unemployment was concentrated in the industrial arc with an emphasis on the growth area (Figs. 6.02 and 6.03). Industries relying on female labour would be best served in this index by a location in the industrial arc of the county.

Thus the evaluation of unemployment indicated an available source of labour concentrated in the industrial part of the county. Although in terms of absolute numbers and in trends between 1959

and 1967 the potential supply was more favourable in the male sector, the female sector held the advantage in terms of background in manufacturing industry. However, this assessment must be qualified by the suitability of the unemployed for employment. The general consensus of opinion among Fife industrialists was unequivocal that the unemployment statistics were not a valid indication of available labour, since to them, the "unemployed were mostly unemployable" and most stressed that they "seldom obtained suitable employees from the unemployed, but relied on recruiting new entries into the labour market, either school-leavers or married women seeking employment for the first time, and on applicants already employed in other industries in the area." This reduced the value of the unemployed as a potential source of labour for Fife industry.

Housing and Labour Supply.

The provision of housing for labour was another aspect affecting the availability of labour for industrial development in Fife. The programme for development and growth stated the government's intention to increase the rate of house construction in Central Scotland, especially in the growth areas,²⁸ a policy which had the advantages of concentrating the investment in housing in chosen centres of growth and/or potential growth²⁹ and of increasing the geographical mobility of labour into the areas where labour was necessary to achieve expansion. Central Fife in general, and the new town at Glenrothes in particular, constituted one of these favoured areas.

House construction in Fife in the 1945-67 period was substantial with a pattern emphasizing the industrial arc of the

county, notably the designated growth area of Central Fife (Table 6.19; Map 6.10). However, a significant proportion of the total houses constructed there since 1945 had been in response to the planned growth of coalmining in the earlier part of the period;³⁰ only in the later stages was the provision of housing for manufacturing industry a matter of importance, with the Kirkcaldy-Glenrothes area a key location in this development.

The assessment of the Central Scotland programme that "the availability of housing is one of the crucial factors affecting a family's decision whether or not to move to a new district"³¹ was substantiated in the Fife case study. This was obvious in the decisions of industrialists to locate establishments in the county, since one-quarter of the new firms interviewed cited the availability of housing for labour as a factor in these decisions.³² This provision of housing represented a particularly effective incentive in the recruitment of key employees from other areas and for management and staff in the initial stages of location,³³ and it was also significant in attracting other lesser-skilled elements of labour into the county.³⁴

Spatially, in terms of housing as a factor in the mobility of labour, Glenrothes New Town was the principal receiving area in Fife, drawing residents not only from the local area but also from other parts of the county and from further afield in Scotland, England and Wales, and overseas (Table 3.41). No less than 45% of the population of the new town in 1967 were immigrants from outwith the county of Fife. In addition, available housing in Glenrothes had attracted applications from emigré Scots for employment in the area and had motivated several to return to Scotland,³⁵ an occurrence which suggested that skilled Scots could be recruited

to the labour force. Two factors were important in the favoured status of Glenrothes in housing: the housing programme was not encumbered with redevelopment as in other settlements in Fife, and the new town followed a policy to keep housing completions in step with, or ahead of, incoming population and industry. Moreover, the provision of a range in housing at scaled rentals proved extremely beneficial to new industries recruiting skilled labour and especially for senior management and staff from outwith the area, many of whom accepted this accommodation for a short period before purchasing their own homes either in rural or in coastal areas nearby. By comparison, the housing situation at other locations in the county was much less favourable though most local authorities in the industrial arc of Fife, especially Kirkcaldy, provided rented homes for key personnel in industry (Table 6.20).

Thus the provision of rented housing at reasonable rates was a significant factor in adding to the supply of labour in Fife, so verifying that the availability of housing represented an important feature in labour mobility. However, the survey of industries in the county revealed that considerable improvements could be made in the provision of accommodation for single personnel and in the private housing sector. In the latter, the main complaints were the limitations in choice of house-type, the high rates and taxes as a result of subsidized local authority housing which was given priority over the private sector, and the lower standards and higher costs of housing compared with other parts of the United Kingdom. It was held that in certain cases these shortcomings had deterred labour and staff and management from migrating to Fife. Undoubtedly, the low incidence of private house construction was a vital factor in these complaints, but

evidence that this situation would improve in time was seen in the rise in the number of homes built in the private sector from 1963-64, a trend which was most pronounced in Kirkcaldy (Table 6.21).

Conclusions on Labour Supply in Fife.

The investigation of labour availability in Fife disclosed that although the supply of labour was ample to satisfy demand throughout the entire 1959-67 period, by 1967 this favourable situation had deteriorated sufficiently to give concern for further industrial expansion in the county. The supply of labour was declining, this at a time when demand was expected to accelerate appreciably (p.6.15).

The decline in the supply of labour was determined by the cumulative trends in the several elements conditioning labour availability in the Fife region, notably those in population. The potential labour force was declining and ageing mainly as a result of high and age-selective net emigration, which was not only removing the vital younger elements of population and labour, but was also partly responsible for the falling birth rate and the lowering of the natural increase between 1961 and 1966. This reduction in the potential labour force was further aggravated by the increase in the net loss in daily commuting to areas outwith Fife and by the realization that the apparent availability of labour as indicated by unemployment was, in practice, an over-estimation. In addition, the supply of female labour was also reduced by a marked rise in activity rates indicating a lower degree of underutilized labour in this sector by 1966; in contrast, activity rates for males declined during the period.

All the above trends reduced the potential labour supply

for Fife industry, but the total impact was lessened by the developments in housing as it affected labour availability and by the changes in the spatial pattern of daily movements of labour in the county. The provision of housing was attracting labour to Fife; and the growing mobility of labour was increasing the work force at centres of industrial expansion.

The supply of labour for Fife industry will continue to decline in the post-1967 period, notably as a result of trends in population, but even with a rise in demand and an increase in competition for labour, especially in the female sector, industrial development in the county should not be hampered unduly by labour shortages, at least until 1971. Low activity rates indicating a considerable source of both male and female labour and the apparent ability to draw labour to areas of industrial expansion, either by daily travel-to-work or by the provision of housing, were significant factors in this assessment. Much would depend on the industrialists activating this potential source of labour, but the increasing use of married females in the preceding 1959-67 period suggested that this would not present any major difficulty.³⁶ Moreover, in the context of labour supply as it affected industrial development, the rising competition for labour would be more detrimental to the older industries in the area than to the newer upon which the future of the county depended (p.5.92). The newer establishments would continue to win the newcomers entering the labour market and would continue to plunder the older sector for employees (p. 5.93). However, given the continuation of the 1961-66 trends into the post-1971 period, the labour situation in Fife would become progressively less advantageous for industrial development. The supply of labour would continue to decline as activity rates increased and as net

emigration further reduced the potential work force in the county: and this would occur while the demand for labour was rising.

Finally, the investigation of labour availability in Fife between 1959 and 1967 indicated the favoured status of the Kirkcaldy-Glenrothes area in the supply of labour in the county. The distribution of population, unemployment (even though a questionable asset), travel-to-work, and housing as an attraction for labour, and the changes in these patterns between 1959 and 1967, emphasized this area as the key location for labour in Fife, a status which was to a large degree responsible for the growth of new industries in this zone (Chapter VII), and which thus aided in the emergence of this area by 1967 as the growth point of Fife industry.

The Quality of Labour in Fife.

Any reasoned investigation of labour in Fife had to consider the suitability as well as the availability of the work force in the county, noting that the former was, in part, dependent on the latter (p. 5.92). In this thesis the qualitative assessment of labour was based on information gained from interviews of industrialists in Fife, and while one must accept that this evaluation was subjective and could in fact be erroneous, nevertheless it was effective in industrial location in the county in the 1959-67 period and would continue to be so after 1967. Thus the qualitative assessment of labour was such "that nothing in the nature of mathematical certainty was possible..... some of the findings being necessarily as much matters of judgement and experience as of demonstration."³⁷

In overall general terms, the suitability of labour in

Fife varied mainly according to the duration of operation of each particular industry in the Fife setting, the new establishments introduced into the county from 1958 expressing greater satisfaction with the work force than the older more traditional concerns in the area. This was the cumulative effect of several factors. The newer establishments were able to recruit the superior elements of available labour; attracted to the area by trainable labour, their expectations of labour quality were not as high as those in the traditional sector which had possessed a virtual monopoly of labour before the introduction of competition from 1958; the newer industries were more heavily based on activities requiring female labour which in Fife was classed as superior to male labour. However, to place this general evaluation in its proper perspective, the suitability of labour in Fife relative to other parts of the United Kingdom was assessed as an asset to industrial development (p. 5.93), an asset in which the mere availability of labour suitable for training was the most significant factor.

The consensus of the newer establishments in Fife was that labour in the county was extremely satisfactory both in absolute terms and, more so, relative to other parts of the United Kingdom. This assessment was made despite a continuing shortage of skilled labour throughout the entire 1959-67 period, necessitating the importing of skilled, key personnel into the area.³⁸ This shortage was most acute in the male sector, especially in engineering and electronics where a high quality of labour was required and where the indigeneous labour force had no previous experience in many of the processes involved. However, by 1967, as a result of training programmes initiated by the newer industries and the growing experience of labour in the new processes, the

situation in terms of skilled personnel had, without giving any cause for satisfaction or complacency, improved. This was particularly true in the Glenrothes area where several firms reported "the beginnings of the circulation of a pool of skilled labour in the area",³⁹ suggesting that, given time and continuing economic progress and labour suitable for training, the position in skilled labour would improve.

The most satisfactory aspect of labour for the newer industries was undoubtedly the suitability of the work force for training. These industries assessed labour in Fife as suitable and satisfactory, an assessment which reflected not only the effects of the provision of employment opportunities and subsequent training, but also the calibre of the people in the area. Training was essential, but time showed that the population possessed the aptitude and, equally important, the attitude to absorb this training and form an efficient labour force. Industries demanding skills and processes foreign to the county had been successfully introduced into the industrial structure by 1967 and the positive response of the labour force was a significant factor in this success.

The quality of female labour was especially highly praised by the newer industries, particularly electronics. By 1967, the female sector in the new establishments formed an efficient labour force. Possessing basic advantages derived from a "sound educational system" and the inherent attributes of "adaptability", "intelligence", "progressive outlook", "resilience", and the "ability and keenness to learn quickly", the female intake had responded with measurable success to training and proved extremely satisfactory to industrialists locating in the area.⁴⁰ In this

evaluation, time, enabling the effects of training programmes to bear fruit and permitting the growth in experience of the new processes involved, was a significant factor. In addition, and contrasting with the older industries in the area, this assessment reflected the ability of the newer establishments to recruit the better quality elements of entries into the labour force, a "creaming" which became increasingly significant as personnel departments built up a knowledge of the local people and of the conditions in the area.

The opinions of the new industries on the quality of male employees were mixed⁴¹ and generally less favourable than those on female labour. Nevertheless, male labour in Fife was assessed as satisfactory when trained, and as having the potential to become an efficient work force in time. It was described as "fairly able", "quite adaptable" and "generally willing to listen, learn and follow instructions, particularly when given the incentive and prospect of promotion". These fundamental attributes, backed by a sound educational system and stimulated by training in the new processes introduced into the area, augured well for the continued improvement in the quality of male labour in Fife. As in the female sector, the ability of the newer industries to "cream" the labour market was an important factor in this assessment, the new firms being satisfied with the quality of the youth entering the labour market.

The evaluation of labour suitability also involves consideration of turnover, absenteeism, labour-management relations and productivity. In Fife, each of these indices created no major problem for the newer industries after the early stages of location in the county and, in these respects, labour in the county compared

very favourably with other parts of the United Kingdom.

The turnover of labour in the newer industries was much higher in the earlier stages of operation,⁴² but with increasing experience in the selection of employees, growing knowledge and awareness of the area and its labour force, and greater stability of the new concerns, this situation had improved considerably by 1967. Labour turnover was always higher in the female sector and in married females relative to single, but this was expected due to the wider range of employment opportunities for females, to marriage and pregnancies, to domestic problems, and to the lower degree of necessity for females to support themselves. It was also higher in the less-skilled category of employee, although an increased mobility in skilled labour was noted in the Glenrothes area.

The pattern and trends in absenteeism and the underlying causes were similar to those in labour turnover. Absenteeism was higher in the earlier stages of development in most new establishments but declined progressively with the recruitment of the better-type of employee, with the application of more stringent attitudes by the industrialists⁴³ and with a growing sense of responsibility on the part of labour in response to standards imposed by industry. Absenteeism was higher in female employees, in married females relative to single and in the lesser-skilled, hourly-paid employees, male and female, compared with the higher-skilled and staff appointees. Overall, although absenteeism in Fife did not constitute an insurmountable problem for the newer industries, it caused them more concern than labour turnover, especially in its detrimental effect on output in industries using flow-line methods of production, industries such as electronics.

A history of good labour-management relations was one factor in the decision of several firms to locate in Fife,⁴⁴ a reasoning substantiated by subsequent experience in the county. Management in the newer industries considered labour relations exceptionally satisfactory. Labour in general was described as "extremely co-operative and, given the means of consultative machinery, it responded to fair treatment by management".⁴⁵ Exceptions to this assessment did exist but they were notable as exceptions. One or two firms employing ex-coalminers mentioned the tendency of some of them to be "troublemakers" and to form a "militant unionism", but others held that they were extremely co-operative and suitable. Another minor problem was that time-served tradesmen considered government-trained "dilutees" as inferior and, conversely, some "dilutees" considered themselves as fully-trained journeymen. However, neither had created any major problem, and with these attitudes breaking down in time, labour relations in Fife were satisfactory to the newer industries.⁴⁶

The views of industrialists on labour productivity in Fife were mixed.⁴⁷ The interviewees, with a few exceptions, were loathe to compare productivity in the county with that in other areas, but were contrastingly frank in their opinions that it was rising as labour responded to training and became accustomed to the new processes. Of the concerns giving an opinion on productivity in Fife relative to other areas, the range of satisfaction varied widely. One firm engaged in the manufacturing of hosiery and other knitted goods stated that "productivity is rising rapidly with training and experience, and this factory is now one of the most efficient in the group. Productivity here is as good if not better than elsewhere".⁴⁸ Another concern in engineering held that

"given the same capital investment per worker in machinery, productivity is as high as in the United States."⁴⁹ Against these viewpoints in favour of Fife labour one had to weigh others not so favourable, such as that of the engineering concern in Dunfermline which maintained that "efficiency (productivity) has been lower than at our parent company in the South of England " (ref. 41), and as that of a clothing manufacturer that "productivity is lower than in the south, but we expect to overcome this failing with training."⁵⁰ Overall, since the general satisfaction with labour in the county was assumed to include an evaluation of production and productivity, one must conclude that the productivity of Fife labour was satisfactory and that, considering the relative newness of these industries in the area, it would rise significantly in the future, given the necessary capital investment per worker in machinery, together with efficient direction and organization of labour and work procedure.

In contrast to the newer industries, the older industries in Fife considered the quality of labour to have deteriorated since 1958 with the introduction of new establishments into the county. This deterioration was long-term and intensified as competition from the newer industries increased, as selective net emigration removed the more vital elements of the work force from the area and as increasing employment opportunities reduced the attraction of the older industries, the position being much graver in the female sector where a higher degree of choice in employment existed. However, most of the traditional industries maintained that the area retained a core of suitable labour which constituted an asset relative to other parts of the United Kingdom. The situation had not yet reached crisis proportions

by 1967, but as natural wastage replaced the older with younger and lower quality elements of the labour force, most of the older industries in the county expressed grave concern about the future supply of quality labour in the area.

In terms of skilled labour, the assessment of the quality of labour varied between male-employing and female-employing industries. As in the newer industries (p. 6.26), skilled labour was in short supply in both the male and female sectors but while the situation in male labour was showing signs of improvement,⁵¹ that in female labour was deteriorating as the effects of the decline in the quality of intake over the 1959-67 period and of the continued emphasis on traditional methods of training materialized.⁵² In this, the influx of the new female-employing industries, creating alternative and more attractive opportunities, was a dominant factor reducing the quality of female labour in the older industries in the county.

The evaluation of semi-skilled and unskilled labour in the older industries was similar to that in skilled labour. The situation was much graver in the female sector as a result of the expanding opportunities for alternative employment and of the lower degree of need for employment. This was apparent in the indices of labour quality. In the male sector, labour turnover and absenteeism was mainly confined to unskilled employees and presented no problem to the industries involved; labour relations, with the exceptions of a degree of "protective" and "restrictive" practices in shipbuilding, gave little cause for concern and were acceptable to the industrialists; and productivity was also considered to be adequate in the male industries.⁵³ By comparison the situation in female labour was disturbing.

Turnover and absenteeism, particularly among the younger elements of the work force, were rising, in some cases to "alarming proportions"; labour relations, while generally satisfactory, were less acceptable than in earlier years; and productivity was giving cause for concern.⁵⁴ Overall, the general deterioration in the quality of labour in the older industries was becoming a major problem by 1967 with little hope of any substantial change in the situation in the immediate future.

The Training of Labour in Fife.

The Central Scotland programme not only stressed the need for the training and retraining of labour to improve the economic "milieu" of the region and make it more attractive to incoming industry, but also incorporated measures to satisfy this requirement (pp. 2.20 - 2.21). These measures included provisions for training new entries into the labour force, for adults seeking training for the first time or retraining in a new skill, and for assistance to firms using on-the-job training which would continue to bear the brunt of labour training in the region (p. 2.21). All were relevant in Central Fife.

The Fife case study verified the above assessment of the need for training and retraining of the area's labour force and of the importance of the measures in the programme in this task. It has been established that the lack of skilled labour was reducing the efficiency of every industrial sector in the county (p. 5.92), a problem which was obviously more serious for the newer industries in the initial stages of the 1959-67 period before the benefits of training could be realized.⁵⁵ Most of these industries, especially those in engineering and scientific instruments-electronics, had

been introduced into an area with little previous experience of the processes involved and located there in full knowledge that labour required training. The availability of "trainable" labour pulled them to Fife, the provisions for training under the programme of development and growth aided them in making the labour force efficient and suitable for their requirements.

Another noticeable and significant feature in the assessment of labour training in Fife was the difference in attitude and approach to formalized training between the older and the newer industries in the county. In general, the older industries were less receptive to changes in training methods and were much slower to alter their traditional approach to training. The newer industries, for whom the need to train labour was more urgent in the earlier stages of the 1959-67 period and who had experience of advances in training elsewhere, were more aware of the value of training and more up-to-date in their method of approach and efficiency in this important aspect of industry. However, it must be noted that, by 1967, the pressures imposed by the need for skilled labour had motivated some of the older establishments to review their training methods and a few were in the process of setting up training schools in their premises (p. 546).

The assessment of the training of labour in Fife in 1966-67 was complicated by the recency of the Industrial Training Act. In 1967, only three Industrial Training Boards relevant to Fife industry (namely shipbuilding, engineering, and wool, jute and flax) had been set up, and of these only engineering had gone beyond the initial stages of preliminary operation.⁵⁶ Further, any assessment of the impact of this legislation had to be tempered

by consideration of the short duration of its operation. Overall, the training of labour in Fife was (like the industrial structure of the county itself) in a period of transition from which would emerge more formalized up-to-date training programmes creating a more efficient labour force trained to the requirements of the various industries involved. The end result would improve the supply of skilled labour in the county rendering it more attractive to the new industries essential to strengthen the economic base of the area.

The Ministry of Labour was responsible for the organization of industrial training in the United Kingdom and used both direct and indirect methods to improve the standards of training and to ensure an adequate supply of trained labour for industry. Directly, the Ministry of Labour trained and retrained adults in government training centres and gave assistance to companies in development districts engaged in on-the-job training programmes; indirectly, it was also responsible for establishing the various Industrial Training Boards under the Industrial Training Act (1964). Each method was effective to varying degrees in Fife.

Fife was not well served in terms of the supply of trained labour from government adult training centres. In 1967, the area had only one such centre (at Muircockhall in Dunfermline) and it was inadequate to meet the requirements of industry both in numbers accommodated and in course content. Muircockhall was established as a government training centre only in 1965 and with intake limited to a maximum of 146 trainees for courses of a six-month to one year duration depending on technical content, it was obvious that the supply of semi-skilled labour from this source could have only a minor effect in the overall training of labour in the county. Moreover, as a result of site constriction, no further expansion was

envisaged at Muircockhall⁵⁷ while, in terms of course content, the syllabus concentrated on engineering, construction and miscellaneous trades, few of which were directly related to the newer skills required in the area (Appendix 6.01). However, in this context of adult training, it should be noted that a new centre, due to be opened in Edinburgh in September, 1967, would admit trainees from Fife and would be closely involved with training in the newer industrial skills.⁵⁸

Several industries in Fife, notably engineering, employed trainees from the Muircockhall training centre as semi-skilled labour and all commended the training programme as being extremely useful.⁵⁹ With the exception of minor friction in the initial stages between these "dilutees" and time-served craftsmen (p. 6.30), no major problems had been encountered by management in the use of this type of labour. Overall, the industries involved were satisfied with the efficiency of the trainees, suggesting that, given a wider content of courses and premises to accommodate an increase in the intake, this method of labour training in Fife could be of even greater benefit to the county and its industries.

The above training and retraining of adults in established government training centres was complemented by the training of new entries into the labour force under the auspices of the Industrial Training Boards set up by the Ministry of Labour in accordance with the Industrial Training Act (1964). As already pointed out, by 1967 only three Industrial Training Boards directly affecting major-employing industries in the county had been established and only the Engineering Industrial Training Board constituted an effective force in the area. The Board for the Wool, Jute and Flax Industry was still in the preliminary stages of organizing its

activities in Scotland,⁶⁰ while the size of the shipbuilding industry in Fife was not sufficient to allow the realization of effective group training in the area (ref. 56). By comparison, the organization of the engineering industry was well developed in the county, mainly as a result of the Fife Engineering Group Training Scheme which embodied the group training concepts of the industrial training boards, but which had been established by engineering companies in the county in 1963 before the passing of the Industrial Training Act.⁶¹ The Industrial Training Board for Engineering accepted this scheme and financed its activities under the terms of the Act.

The scope of the Industrial Training Boards was extremely wide and covered all levels of training from management and supervisory personnel to operatives. However, in the initial stages, (1964-67), they were especially involved in the training of technicians, craftsmen and operatives, providing grants to companies operating training schemes approved by the Board and assisting in setting up such schemes. In Fife in 1967, the engineering companies were making full use of these provisions of the Industrial Training Act while several firms in textiles were in the process of forming training schools and programmes which would come under the auspices of the Wool, Jute and Flax Board when its organization was finalized.⁶² In addition, most of the other industries for which Industrial Training Boards had not yet been formed by 1967, indicated a desire to participate in training schemes,⁶³ and in the meantime they were given financial assistance for on-the-job training under the auspices of the Ministry of Labour in accordance with the provisions of the Local Employment Act. (p. 2.21).

The analysis of the industries in Fife revealed that all of the above "aids" were used in the training of labour in the county

and every industry interviewed stressed the value of the assistance provided in this context. The degree to which each was utilized varied from industry to industry depending on the level of skill required and the stage reached in the formalization of the training programmes of the various industrial establishments. Overall, the engineering sector made the most use of the available assistance and it was notable that this industry not only required a high degree of skilled employees but was also the most progressive industry in terms of training programmes used.

The programmes in the training of labour in engineering in Fife covered the full spectrum in personnel from management to semi-skilled operatives. The time spent in formal training for management varied by company, but it was noticeable that several U.S.-based firms insisted on management-trainees being trained in the United States.⁶⁴ However, the need for this training in management would be reduced in time as a result of the emphasis placed on formal craft and technical apprenticeships in which the engineering companies made full use of the facilities provided by the Fife Engineering Group Training Scheme at Kirkcaldy, a scheme in which the apprentice served his first year full-time at school and the remainder in on-the-job training with day release opportunities (ref. 61). In time, candidates for management positions would be drawn from this source of skilled labour. In terms of semi-skilled labour, the engineering sector relied on training in schools established by the various companies and then on on-the-job supervised training, the length of time depending on the complexity of the skill being acquired.⁶⁵ In some instances, "dilutees" trained in the government centre at Muircockhall were used in this semi-skilled capacity (ref. 59). In overall evaluation, the training provided in engineering in Fife

was the most formalized of any industry in the county and along with electronics constituted the most efficient sector of labour in the area. This acceptance of the value of the training of labour and the emphasis and attention placed on it represented one reason for the satisfaction with labour expressed by industries in the engineering-electrical goods sector in Fife

Like engineering, the scientific instruments-electronics sector of Fife industry was committed to the training of labour, but its emphasis on female labour reduced its involvement in apprenticeship training⁶⁶ and increased the stress laid on company training programmes, where the grants received were considered to be a welcome aid and incentive. The time spent in training in the company schools varied from industry to industry, ranging from a few days followed by supervision on the production line in one firm to six months formal training in another. The assessment of the value of this training can, as in engineering, be gauged by the satisfaction of the various firms with labour in the area. (p. 6.27).

The approach and attitude towards the training of labour in the other major industries in Fife were less favourable than in engineering and scientific instruments-electronics. The shipbuilding industry continued to emphasize craft apprenticeships with day-release and was not receiving the full benefits of the Industrial Training Board for Shipbuilding due to its size in Fife. The paper and linoleum industries also relied on craft apprenticeships where appropriate, but in general terms, the basic failing in these industries and in the textile-clothing sector was the tardiness in introducing formal training programmes for operatives. Training continued to emphasize the old methods epitomized in the weaving industry's "training with Nellie" (p. 5.46), the inefficiency of which was

shown as machinery became faster and more sophisticated and as competition, both in market and for labour, increased. However, by 1967, signs of change were emerging. Nairn-Williamson Ltd., in linoleum, was in the process of completely reorganizing their training programme involving management, supervisory personnel and operatives; Smith-Anderson Ltd., in paper, had appointed a personnel officer to take charge of the recruiting and training of labour; and the newer establishments in textiles and clothing operated training schools while several of the older companies in this industry group were instituting internal training programmes under trained instructors.⁶⁷ A continuation of these trends augured well for the future and would help relieve the shortages of skilled labour, particularly with the establishment in time of the training boards for these industries.

Transport and Communications in the Development of Central Fife.

The second pattern selected as relevant to the investigation of Central Fife as a growth area was transport and communications (p. 6.02). The programme for development and growth stressed the modernization of the regional infrastructure as a means of improving the climate for industrial expansion in Central Scotland; and transport and communications represented a crucial element of this infrastructure (p. 2.20). This emphasis was in accord with the growth area concept in which transport and communications formed the material geographical linkages within the integrated region of development and facilitated the spread effects and transmission of growth.⁶⁸ The Central Fife case study verified the significance of transport and communications as an element vital to the development of any region.

While the Central Scotland programme proposed a "properly phased and integrated, co-ordinated programme of improvements in the infrastructure, financed by increased public investment on these services",⁶⁹ it lacked clear definition in some of its proposals (p. 2.24). This criticism was relevant to transport and communications in which only in road construction was there a definite statement of phased development backed by a stated commitment of capital expenditure over a set period (p. 2.24). No attempt was made to create an integrated transport policy, but the stress on the proposed road network was expected to ensure efficient linkages between the growth areas, the airports and seaports, and south to England (p. 2.24). The Fife study showed that this emphasis on road construction was justified, industrial development in the county being dependent on the movement of raw materials into the area and of finished products out to overseas, and particularly to English, destinations (p. 5.89). Consequently, this section of the thesis concentrates on road transfers.

The physical isolation of Fife was always a factor in its industrial development and was partly responsible for the secondary status of the area in industrial Central Scotland (p. 2.35). This secondary role still persists despite the progressive breakdown of the county's isolation with the construction of the Tay and the Forth Rail Bridges, the Kincardine Road Bridge, and more recently, the Forth and the Tay Road Bridges, structures which brought Fife into the national pattern of transport networks rendering it more accessible than previously and thus aiding in its industrial development. This was particularly true of the Forth Road Bridge which was completed when conditions favourable for growth existed in the county.⁷⁰

The survey of Fife industry made it blatantly obvious that improvements in road transport were critical to industrial development in the 1959-67 period and would remain so in any future expansion. Fife depended on the introduction of new industries from outwith the county for its development (p. 5.86), and while available labour and space were the principal attractions for new establishments, the degree of expansion would have been considerably less had not the area been considered accessible to raw materials and markets and to facilitate personal mobility at the management level (Chapter VII). The improvements in transport, particularly in road transfers, reduced the geographical marginality and relative isolation of the county, especially from 1964 with the opening of the Forth Road Bridge.

"The nature, range and volume of commercial traffic is not merely a source of assurance and encouragement to the Road Bridge authorities, but it indicates beyond doubt that Fife now lies within the complex national mesh of road transportation, a situation that barely existed prior to September 1964."⁷¹

The effects of the above improvements on industrial location in Fife were substantial. Improved accessibility to sources of raw materials and more so to markets influenced the location decisions of 58.6% of the new establishments introduced into the county between 1958 and 1967, 22.4% considering it a major factor in their final decision (Chapter VII). In terms of personal mobility the statistics were equally impressive, 44.8% of the firms interviewed stating that the county's accessibility in this context was a factor in their location decisions, with over one in five holding it to be of major significance (Chapter VII). Without doubt, in the case of personal movements, the completion of the Forth Road Bridge linking Fife with Edinburgh Airport was critical to the location of new establishments in the county and was thus a crucial factor in industrial development in the area, so verifying the

conclusions of both the Scottish Council and the Scottish Development Department on the importance of facilities for personal mobility in regional development.⁷²

Most of the improvements in road construction occurred outwith the Fife growth area,⁷³ the only major developments in the county during the 1958-67 period being the completion of the Forth and Tay Road Bridges and the approach roadways to these links. In terms of developments in the near future, only the proposed improvements in the M-90 from Inverkeithing to Perth would directly affect land use in Fife.⁷⁴ However, the improvements in roads linking the Fife growth area with the west coast route to Lancashire, the Midlands and the south, and with Edinburgh Airport, were vitally significant in making the county more accessible. The former was most important in the transfer of goods and was preferred to the east coast route for several reasons. The west coast route was the traditional one of the pre-Forth Road Bridge era with established stop-overs, storage depots and personal contacts adding to this preference; several firms in Fife had connections with Lancashire companies both in terms of raw materials and markets; and the physical conditions of the east coast route made it inferior for driving, adding time and costs to the transfer of goods.⁷⁵ Only firms with connections best served by the east coast road used it to any effect.⁷⁶ Thus overall, in terms of freight movements, the impact of the completion of the Forth Road Bridge with its links to the south via the east coast route had not been revolutionary by 1967. However, the survey of industry substantiated Macgregor's conclusions that the impact of this edifice on industrial transfers would increase in time particularly with improvements in the A-1 route to the south.⁷⁷

While the effects of the Forth Road Bridge in Fife industry

had not greatly altered the traditional orientation of freight movements by the west coast route, its tremendous influence on personal mobility at the management level was unquestionable. The survey of industry in the county verified Macgregor's findings that the Forth Road Bridge linking South Fife with Edinburgh Airport proved a vital factor in rendering Fife accessible for management personnel.⁷⁸

"Fife is now easily accessible; Fife is merely a matter of minutes by road to Turnhouse airport; visiting executives can fly up from London and get back in a day."⁷⁹

This accessibility afforded by the Forth Road Bridge and Edinburgh Airport was critical in reducing the geographical marginality of Fife, particularly in terms of administration in the newer industries which demanded close contacts with technological developments and markets located mainly in the London area. Only efficient transport and communications media made this possible.

Thus overall, little doubt exists that improvements in transport and communications were crucial to the location of new establishments in Fife and thus to industrial development in the county. However, while acknowledging this fact, these improvements, together with the high incidence of branch factories in the Fife area, also had the disadvantageous effect of slowing down the process of integrated development in the growth sectors of the county's industrial base (p. 5.77). These improvements certainly facilitated personal mobility and the movement of goods to the principal markets in the south, but at the same time they also made it easier to transport raw material inputs into Fife, thus rendering it more difficult to establish industrial linkages in the area. Nevertheless, on balance, one must accept this slower integrated development and acknowledge that the improved transport and communications mesh linking Fife with

other parts of Central Scotland and south to England was advantageous to industrial expansion in the area.

Finally, while the improvements in road routes external to Fife proved highly advantageous to industrial development in the county, the internal roadways left much to be desired in this context. With the exception of construction on the M-90 route to Perth, the emphasis on roads within Fife up until 1967 has been on minor improvements such as road widenings, diversions and re-alignments, and in the provision and strengthening of bridges to cope with heavier loads and increased traffic.⁸⁰ Observation of the "main" road links within Fife showed clearly that the county was ill-equipped to meet the challenge of the automobile age and the increased traffic generated by industrial expansion in the area and by the improved links to the south of the Forth (Maps 6.11 and 6.12).⁸¹ In particular, the total inadequacy of the A-92, A-907 and A-914 routes linking the Forth and Tay Road Bridges was critical to future development in the county (Map 6.13). While plans for a regional road for East Fife exist⁸² (Map 6.13), greater urgency and speed of action in its construction is essential to maximize the benefits of Fife as an attraction to industry. Further, it appears reasonable to suggest that the emphasis on road construction to motorway standards in Fife would be much better placed on linking the two road bridges via Glenrothes than on the link between the Forth Road Bridge and Perth (M-90) which has preoccupied government plans for this area.⁸³ Without doubt the use of these bridges will increase and with high standard routes linking them the rate of development in Fife could be raised substantially.

In conclusion, the improvements in transport and communications in the United Kingdom, especially those in the

Central Belt of Scotland and south to England, have been of major importance to industrial development in Fife. Notably, these improvements have brought the county into the national mesh of road transportation, and with the completion of the Forth Road Bridge in 1964 have contributed to breaking down the traditional isolation of the area. Without this increasing accessibility Fife would not have attracted as many industries as located in the county from 1958 and especially from 1963 (Chapter VII). However, these developments in road transport were external to the county, whose internal road system is not suitable for the speed and density of traffic realized from improved accessibility and rising industrialization. In particular, it is imperative that a regional road joining the Forth and Tay Road Bridges via Glenrothes be given urgent priority in major road work in the county. Only thus can the area realize its maximum potential as an attraction for further industrial development.

Decay and Dereliction in the Development of Central Fife.

It has already been stated that this thesis concentrated on economic distributions in Fife, the degree of emphasis on other patterns, social and physical, being determined by their influence on the industrial development in the county (p. 2.31). Decay and dereliction fell into the latter category, its effects being more direct and much more significant in a social context than in an economic one which it had only indirect consequences. With the exception of a degree of direct influence on the distribution of industry, this assessment of dereliction as a factor in the development of Central Fife was in general accordance with the viewpoints of the Central Scotland programme and of the local authorities in the county.

"Just as important as the provision of new infrastructure services is the need to clear up decayed or derelict property and land.....By this means the environment can be greatly improved to the general benefit of the community's morale, and new sites can be obtained in strategic positions for industrial and commercial development."⁸⁴

"I see no valid reason why the living conditions of the people of our industrial areas should be soul destroying, drab and in many cases unhealthy..... The first achievement would be improved living conditions for all who have to live in our industrial areas.....Reclamation could be the means of saving life.....If we wish to encourage industrialists into this area, something must be done and done soon to get rid of this waste and derelict land."⁸⁵

The problems of decay and dereliction in Fife fell into two principal categories, urban and residential blight and derelict land mainly associated with coalmining. In terms of the patterns of dereliction in both these sectors, comprehensive and detailed information for Fife was not available and the collection of such a coverage was outwith the scope of this study. However, sufficient evidence, in the form of statistics on slum clearance and redevelopment, a land use survey of dereliction in Lochgelly District of County, a survey of land occupied by the National Coal Board including farmland owned by the Board, and personal observation in the area, was available and was accepted as being sufficiently valid to assess the nature of decay in the region and to evaluate the measures and schemes employed to improve the situation. Again, in this aspect of Central Fife as a growth area, it must be noted that large-scale dereliction was significant only in the area of the Central Fife Coalfield and that outwith this area the lower degree of industrialization in the county had left it less bespoiled than many other parts of Central Scotland and the United Kingdom (p. 2.38).

The Central Scotland programme emphasized the urgent need for the renewal and rehabilitation of town centres and residential

areas throughout the region,⁸⁶ and observation of the Fife situation showed clearly the justification for this emphasis, particularly in the population centres in the industrial arc. One need only cite the narrowness of the main thoroughfares in the large burghs of Dunfermline and Kirkcaldy to note their fundamental inefficiency in to-day's age of the automobile, while the depressing effects of older sections, complete with condemned buildings and derelict "gap" sites, in these large burghs and in other settlements in the area provided ample evidence of the magnitude of the problem facing the county in this renewal and redevelopment. (Plates 6.01 - 6.03).

The policies of the various local authorities in the county to ameliorate urban decay were centred on the clearance of unfit dwellings and on the removal of derelict "gap" sites. The statistics on slum clearance (covering all houses demolished and/or closed between 1954 and 1966) indicated the progress made in this respect (Table 6.22; Map 6.14). The emphasis was obviously on the industrial arc of the county where decay was most pronounced, and where rehabilitation and redevelopment were most urgently required.⁸⁷ Moreover, the housing which replaced that demolished in this attack on urban blight was of sufficiently high quality in design and amenity to secure the recognition of the Saltire Society and the Civic Trust.⁸⁸

The second aspect of physical decay in Fife, that of derelict landscape, was associated mainly with the coalmining industry and was most prevalent in the Central Fife Coalfield. As an indication of the impact of coalmining on dereliction in Central Fife, approximately 3,288 acres of land in the area at the end of August, 1965 had been rendered sterile by this industry, 1,435 acres in land occupied by collieries, 943 acres damaged by subsidence

(685 acres in farms owned by the National Coal Board, the rest in privately-owned farms) and the remaining 910 acres in opencast working at Westfield (Table 6.23; Map 6.15). The nature of dereliction is illustrated in Plates 6.04 - 6.11 which show areas affected by pit bings, derelict buildings, slurry and silt ponds, and water flashes caused by subsidence. With the demise of coalmining in Central Fife in 1967 (p. 4.38), this was the nature and extent of the legacy left to an area desperately in need of new industry to replace the employment lost in the decline of the coal industry.

The other main source of information on derelict land in Central Fife was the survey of Lochgelly District of County by the Fife County Council Planning Department in 1958, the generalized results of which are shown in Table 6.24. This survey indicated the nature and extent of dereliction both in the built-up areas and in the landward sections of the District and constituted the basis for the planned attack to ameliorate the blight in this area in the post-1958 period. The statistical analysis of dereliction revealed several significant features. Firstly, the area classed as derelict land amounted to over 13.5% of the total area of the District, mainly in the landward part but also significant in the built-up section from Hill of Beath to Lochgelly and Lochore; secondly, most of the derelict landscape was in the category of rough grass, scrub etc. representing a gross underutilization of land; thirdly, the contribution of mining was substantial, mainly due to the predominance of pit bings in the area; and fourthly, the area of derelict buildings with associated rough grass was significantly high with the Lochgelly-Lochore district having a sizable acreage in this category.⁸⁹ Reference to Plates 6.01 - 6.11 provides ample evidence of the nature of dereliction in this Lochgelly District.

Several schemes have been inaugurated by Fife County Council to improve dereliction and decay in Central Fife, each in time being progressively more comprehensive in scope and dealing with larger areas as experience in reclamation accumulated and as more financial assistance from government became available (Appendix 6.02). These schemes have taken two forms, the clearance and reclamation of individual sites including pit bings and those of a more comprehensive and larger scale nature. In the first category, a site reclaimed between Dunfermline and Halbeath is now occupied by a bonded warehouse and a factory manufacturing weatherproof outerwear, while three former bing sites, Hill of Beath No. 1 and No. 2 and Jenny Grey, have been regraded and restored to agricultural land use (Map 6.16; Appendix 6.02). The second category consisted of three major schemes, two of which, (Fife Facelift No. 1 and Fife Facelift No. 2), had been virtually completed by 1967 and the third (The Lochore Meadows Development), the largest and most comprehensive attempted, had been proposed and accepted by the county authorities (Map 6.16; Appendix 6.02).

Fife Facelifts Nos. 1 and 2 schemes concentrated on areas which could be viewed from the roadways linking Cowdenend with Kelty and Lochgelly with Crosshill-Lochore respectively (Map 6.16), and were carried out with the aims of improving general amenity and living conditions and of removing an obstacle considered to deter industrialists from locating in the area.⁹⁰ These schemes included the removal of derelict buildings, the restructuring of coal bings, the tidying of minor aspects such as walls, hedges, fences and gardens, repair and maintenance of private housing, and the planting of trees along parts of the roadways as screens. Overall, the experience gained in the practical operation, in "selling" the idea

to various groups, and in the co-operation of many people from private citizens to local authorities and the National Coal Board, proved invaluable in tackling larger and more complex reclamation projects such as the Lochore Meadows scheme.

The Lochore Meadows project⁹¹ represented a progressive and imaginative scheme to transform approximately four square miles of the most derelict and decayed landscape in Fife, an area abounding in large tracts of depressing colliery sites complete with pit bings and slurry ponds, of urban blight, of poor pasture and of underused land lying derelict and deficient in trees and recreational areas (Map 6.17; Plates 6.04 - 6.11). The proposed changes for this particular area are shown in Map 6.18 and include the provision for 40 acres of land for industrial sites as an attraction to new industries, the reclamation and restoration of 1,035 acres for productive agriculture, the rehabilitation and removal of pit bings and water flashes, the reduction of the Mary Loch by half to 130 acres to form the cornerstone of an extensive recreational area to serve the entire Central Fife region, and the strategic use of shelter belts throughout the area. The successful completion of this comprehensive project will undoubtedly improve the amenity and living conditions of Central Fife and in time will provide industrial sites in a pleasing physical environment which could prove extremely valuable in attracting new industry.

In the same context of controlling and improving the physical environment of the region, note must also be made of the conditions laid down by the County Planning Department regarding the opencast mining development at Westfield, where the National Coal Board are obliged to restore the land on completion of the excavation. In addition to this restoration of the 910 acre site, the National

Coal Board undertook to dispose of the overburden from this development in a depression covering approximately 350 acres, of which 116 acres were classed as non-agricultural, and when completed, this disposal area will be restored to agricultural land use with shelter belts of trees (Plate 6.12).

In conclusion, the experience of Fife County in decay and dereliction was comforting in that although the central part of the county contained a significant area blighted by industrial development, this did not necessarily indicate a permanent situation. With increasing control in land use planning, with rising financial assistance from government, and with the apparent foresight and action of the local authorities, the problem of dereliction was attacked and the degree of success achieved in a relatively short period indicated that an end to this blight was a possibility. The obvious effect was to improve the physical amenity and living conditions in the area, but in the short term, it is this writer's opinion that the case for dereliction as a major deterrent to industrial location was overstated. As a negative factor in the decision-making process to locate new establishments in the area, decay and dereliction was very much secondary to the more positive advantages held by other parts of the county, notably by the new town at Glenrothes. Many industrialists, although dismayed at the decay and dereliction in Central Fife, stated that this had not deterred them from locating in that part of the county, the general consensus of opinion being that Fife abounded in rural and coastal areas of high amenity in which to live and raise a family, and that in any case "they came to their place of employment to work not to gaze at the scenery."⁹² Nevertheless, most of the industrialists interviewed held that dereliction in Central Fife made it more

difficult to recruit key personnel from outwith the area.⁹³ Overall, as a long term measure, the reclamation and rehabilitation of derelict areas will undoubtedly render the area more attractive to industry, particularly as the "spread" effects of polarization at Glenrothes strengthen in time. One must commend the foresight and endeavour of the local authorities in this field in the attempt to help solve the economic and social problems in the area, noting that while social motivation was prevalent at the stage of development reached by 1967, the economic effects of the measures would become increasingly more significant in the future.

REFERENCES AND FOOTNOTES.

¹Footnote. The selection of these distributions was determined by the information gained from the survey of the new establishments in Fife and by the emphasis placed on them in the Central Scotland programme and by the local authorities in the county.

²Interviews of New Establishments; Fife; 1966-67.

³Ibid.

⁴Ibid.

⁵Footnote. The statistics for Kirkcaldy-Glenrothes underestimate the pull of this area on labour since they do not include employees now permanently resident in the new town. Almost one-quarter of the inhabitants of Glenrothes in 1967-68 were drawn from parts of Fife other than the Kirkcaldy-Glenrothes area. (See Table 3.41).

⁶Footnote. Movement was particularly heavy between Cowdenbeath-Burntisland and Dunfermline-Inverkeithing and significant between Kirkcaldy-Glenrothes and Leven and between North and East Fife and Dundee.

⁷Footnote. e.g. Note the marginal increase in net daily movements from North and East Fife (mainly the Cupar area) to Kirkcaldy-Glenrothes and Dunfermline-Inverkeithing and from Leven into North and East Fife, and the growing net loss of labour from Fife to employment areas outside the county.

⁸Footnote. In 1966 this area was attracting employees from as far afield as Coatbridge and Motherwell but mostly from the Alloa-Falkirk-Stirling and Edinburgh areas. (Data from Ministry of Labour, Edinburgh).

⁹Footnote. This trend was already apparent by 1966, the increase from 1963 to 1966 being considerably less than from 1959 to 1963 (Table 6.02).

¹⁰Footnote. It should again be noted that the daily travel-to-work statistics are an underestimation of the "pull" of these industries on labour in the industrial arc (see ref. 5).

¹¹Footnote. This loss was mainly to Alloa (276 out in 1959 and 450 in 1966) and to Edinburgh (135 out in 1959 rising to 430 in 1966). (Data from Ministry of Labour, Edinburgh).

¹²Footnote. The statistics on female labour travelling out of this area in 1959 were 33 to Edinburgh and 95 to Perth, rising to 280 and 170 respectively in 1966. (Data from Ministry of Labour, Edinburgh).

¹³Scottish Development Department, (1963), op. cit., para. 27 (e).

¹⁴Footnote. Natural increase as used here refers to the surplus of live births over deaths to place of residence. Between 1952 and 1961 inclusive, the average annual natural increase in Fife was 2313. (Data from Annual Reports of the Registrar-General for Scotland, Edinburgh).

¹⁵Footnote. The average annual net migration loss in Fife, as calculated by survival rates, was 1100 in the groups aged 0-64 in 1951. (See Table 6.07 and Map 6.08) (Data from Registrar-General for Scotland, Edinburgh: Census Reports for 1951 and 1961; Annual Reports for 1952-61 inclusive).

¹⁶Footnote. The average annual natural increase in Fife between 1962 and 1966 was 2255 compared with 2518 in the 1957-61 period. Note that the average for 1952-61 was only 2313 as a result of a lower natural increase (2108 per annum) in the 1952-56 part of that period. (Data from Annual Reports of the Registrar-General for Scotland: 1952-66).

¹⁷Footnote. From the data available in the 1966 sample census it was possible to estimate net migration between 1961 and 1966 only for the Burghs within each District of County and for the total landward area of Fife. Note that these estimates mask the influx of population into Kirkcaldy District of County which included the new town at Glenrothes.

¹⁸Footnote. Kirkcaldy District of County was an exception to this general statement. In this area, net immigration of younger elements in the population affected the proportions in the 45-and-over age groups. However the 65+ age category increased absolutely by approximately 620 between 1951 and 1961, while those in the 45-64 age group increased by 1060 in the same period.

¹⁹Footnote. The age-selective nature of net migration was significant in these changes, net immigration being important in the growth in Kirkcaldy-Glenrothes and net emigration being relevant in Lochgelly District of County. The rapid decline of the coal industry in Central Fife was a significant motivating factor in the net emigration statistics recorded in the Lochgelly area.

²⁰Footnote. This assumption of growth in the potential labour force of Kirkcaldy District of County was based on the fact that this area increased its population during the 1961-66 period mainly as a result of the inflow of people into the new town at Glenrothes. Since migration has been shown to be highly age-selective it was assumed that the work age groups were significant in the total increase in population in this area.

²¹Footnote. The estimates for 1971 were calculated on the assumptions that the average deaths in each ten-year cohort over the 1959-68 period would remain constant over the 1961-71 period and that the net migration by cohort between 1966 and 1971 would be similar to that between 1961 and 1966.

²²Footnote. In this, employment statistics are taken as an indication of demand for labour.

²³Footnote. The assumptions used to calculate the estimates for 1971 in this table were similar to those in Table 6.12. (See Ref. 21).

²⁴Footnote. This did not apply to the Glenrothes area where net immigration of younger elements of population was rejuvenating the age structure. This was a significant factor in the "pull" of the new town as a source of labour and potential labour in the future. (Table 6.12).

²⁵Footnote. The basis for these estimates in employment trends by sector lay in the trends in each sector in the 1961-66 period together with information gained from the survey of industry and from industrial development certificate data for Fife.

²⁶Footnote. It is accepted here that although the subjective assessment of the quality of the unemployed by the industrialists in Fife could be erroneous, it was nevertheless effective in their attitudes towards unemployment as a source of potential labour.

²⁷Footnote. Industrialists in Fife held that unemployment statistics in the county were a grave over-estimation of the labour available in the area. They maintained that many of the unemployed were unemployable and that a significant proportion of females sought employment merely to acquire sufficient credits to qualify for unemployment benefits. (Interviews of Industrialists: Fife: 1966-67).

²⁸Scottish Development Department, (1963), op. cit., para. 87.

²⁹Footnote. To achieve the target of 9,000 houses per year in the growth areas the investment by government was estimated at "some £24 millions per annum". (Scottish Development Department, (1963), op. cit., para. 147).

³⁰Footnote. e.g. The planned expansions of Oakley in West Fife, Ballingry in North-Central Fife, Kennoway and Glenrothes in East Fife were carried out in response to the requirements of the coalmining industry (p. 4.47). Again, it should be noted that housing programmes in Fife did not only cater for the influx of labour into the county, the main "raison d'être" being to satisfy the needs of the local population by the removal of unfit housing and by meeting the rising demand for accommodation as space standards altered in time. (e.g. see Smith, P.J., op. cit.).

³¹Scottish Development Department, (1963), op. cit., para. 87.

³²Interviews of New Establishments; Fife; 1966-67.

³³Footnote. The attraction of housing to facilitate the mobility of labour into Fife was thrown into higher relief due to the fact that most of the new industries located in the county to take advantage of the availability of trainable labour. However, since the majority of these new industries required skills not available in the area, skilled personnel had to be brought in until the training programmes initiated by the firms provided labour suitable to the demand. e.g. One engineering company in Glenrothes in 1967 had eight senior staff, four from West Scotland and two each from Dundee and England, (Interview: Cessna Industrial Products Ltd.; Glenrothes; 1967). Again, the provision of housing for management and key staff in the initial stages of location "tipped the balance" in favour of Dunfermline for a major electrical company. (Interview; Philips (Dunf.) Ltd.; Dunfermline; 1967.).

³⁴Footnote. One Scottish metal manufacturing company transferred its entire operation from Perth to Glenrothes and every employee was allocated a house in the new town. (Interview; J.B. Butchart and Sons Ltd.; Glenrothes; 1967.).

³⁵Interviews of Industrialists; Fife; 1966-67.

³⁶Footnote. The survey of industrialists in Fife indicated this rise in the employment of married females from 1959. Industry in the county commended the suitability and efficiency of this sector of the labour force. (Interviews of Industrialists; Fife; 1966-67).

³⁷Scottish Council (Development and Industry), (1962), op. cit., para. 01.06.

³⁸Footnote. Note, however, that this need to attract skilled labour into the county was an accepted consideration in the location decision of each firm and certainly the larger engineering and electronics establishments were under no misconception that labour had to be trained in their respective processes. (Interviews of New Industries; Fife; 1966-67).

³⁹Interviews of New Industries; Fife; 1966-67.

Footnote. The improvement in the skilled labour situation was also indicated by firms locating in the county in 1966-67, some of whom were attracted partly by available "skilled labour" they hoped to "poach" from similar-type industries established in the area in the earlier stages of the 1958-67 period.

⁴⁰Interviews of New Industries; Fife; 1966-67.

Footnote. This assessment of female labour in Fife represented the viewpoints of firms introduced into the area in the earlier part of the 1958-67 period, firms which had attained stability and had formalized their training programmes. e.g. Beckman Instruments at Glenrothes stated that...."The female labour in Fife is the best in the firm's long experience in this business".

⁴¹Footnote. The views of the new establishments on the suitability of labour ranged from complete satisfaction.....

"All (male employees) are very adaptable, extremely co-operative and given experience and initial direction the labour force is first class." (Interview: Cessna Industrial Products Ltd.; Glenrothes; 1967).

"The quality of labour is first rate in that it is trainable and given training, experience and most important, the same capital investment per worker in machinery, productivity is as high as in the United States." (Interview; Trane Ltd.; Donibristle; 1967.).

.....to
disillusionment.

"Male labour has never been fully satisfactory or suitable and efficiency has been lower than at our parent plant in the South of England." (Interview of an Engineering Manufacturer; Dunfermline; 1967.).

This last assessment could be the result of the industry's nature which is precision engineering and, related to this, the fact that this company had only recently established a full-time training school at its location.

⁴²Footnote. The higher turnover of labour in the earlier stages of operation was attributed to several factors. Some employees had been attracted by their curiosity in the newer forms of industry; some were not suitable to the type of employment available; some were "drifters" in any situation; some used employment only to obtain housing, a motivation particularly relevant in Glenrothes. Again, in certain instances, the turnover of labour was attributed to the new management's lack of "feel" and knowledge of the area's labour force. (Interviews of New Industries; Fife; 1966-67).

⁴³Footnote. The stronger attitudes adopted by industrialists to reduce absenteeism took several forms, notably an insistence on a doctor's certificate for absence.... some firms have appointed medical practitioners to avoid loopholes in this....., the keeping of records of absenteeism and the threat of dismissal for repeated absence without a reasonable reason. (Interviews of New Industries; Fife; 1966-67).

⁴⁴Footnote. Several firms which located in Fife indicated that good labour relations were important as a factor influencing their decisions. Some held that a history of poor labour relations had deterred them from locating in certain areas of the United Kingdom; for others the shortage of labour in the Southeast Quadrant had increased the incidence of restrictive practices in labour and had been a factor in their decision to seek a new location for their enterprises. (Interviews of New Industries; Fife; 1966-67).

⁴⁵Footnote. e.g. Some firms improved labour-management relations by forming joint labour-management consultative committees, others employee advisory committees. Again it was notable that at one location labour itself rejected a bid to introduce trade unionism into the factory. (Interviews of New Industries; Fife; 1966-67).

⁴⁶Footnote. This assessment of labour-management relations in Fife contrasts with the findings of Cameron and Reid's survey of firms which rejected a Scottish location. (Cameron, G.C. and Reid, G.L., (1966), op. cit., p. 22.).

⁴⁷Footnote. Note that although this statement agreed with the findings of Cameron and Reid, the conclusions on productivity in the Fife case study were more favourable to Scottish labour than those in their study. (see Cameron, G.C. and Reid, G.L., (1966), op. cit., pp.20-21.).

⁴⁸Interview; Lyle and Scott Ltd., Rosyth; 1967.

⁴⁹Interview; Trane Ltd., Donibristle; 1967.

⁵⁰Interview; Nelbarden Manufacturing (Scotland) Ltd., Kirkcaldy; 1967.

⁵¹Footnote. This assessment was held by major male-employing industries in the county. e.g. Balfour in Leven had no problem in recruiting school-leavers to train in the industry and with improved training methods the supply of skilled labour was improving. (p. 5.85).

⁵²Footnote. The decline in the quality of female intake into the older industries was due mainly to competition from the newer female-employing industries such as electronics. Again, in terms of training of labour, it must be noted that several companies were adopting more formalized type of training programmes. (Chapter V).

⁵³Footnote. e.g. Productivity was rising slowly in industrial plant and steelwork and in paper and board, while labour in ship-building and marine engineering was assessed as being as good as any in the United Kingdom, but inferior to certain overseas producers. (Chapter V).

⁵⁴Footnote. e.g. Productivity in the weaving industry, the largest female-employing sector in Fife industry, although rising slowly as a result of increased mechanization and modernization, lagged behind competitors in England and in continental Europe. (p. 5.47: refs. 118 and 124, Chapter V.).

⁵⁵Footnote. Note that in the older industries the problem of the lack of skilled labour was more acute at the end of this period as a result of increasing competition from the newer industries and the inability of the older industries to attract the better quality entries into the labour force.

⁵⁶Footnote. In shipbuilding and marine engineering, the Royal Naval Dockyard at Rosyth did not come under the jurisdiction of the Industrial Training Board while the small scale of the rest of the industry in Fife prevented the benefits of group training being realized. Negotiations were in progress for Burntisland Shipbuilding Co. Ltd. to join the Fife Engineering Group Training Scheme which, by 1966, was under the Engineering Industrial Training Board. (Interview; R. Griffith Esq.; Shipbuilding Industrial Training Board; Glasgow; 1967.)

⁵⁷Interview; Ministry of Labour; Edinburgh; 1967.

⁵⁸Ibid.

⁵⁹Footnote. The emphasis on engineering courses at Muir-cockhall was the main reason for the predominance of engineering firms using trainees from this centre. Among the firms using this labour were Anderson-Boyes and Co., Elliott Automation Ltd., (Gordon Valves Section), Sandusky Ltd., Stowe-Woodward Ltd., J.B. Butchart and Sons Ltd., and Monotype Corporation Ltd. (Interviews of Industrialists; Fife; 1966-67).

⁶⁰Interview; A. Gorman Esq., Wool, Jute and Flax Industrial Training Board; Edinburgh; 1967.

⁶¹Footnote. The Fife Engineering Group Training Scheme set up in 1963 began formalized training in July 1964. The scheme concentrates on off-the-job training for first-year apprentices providing them with a broad-based programme covering all trades, but in 1967 it expanded into supervisory and operative training in a few companies.

⁶²Interviews of Industrialists: Fife: 1966-67.

⁶³Ibid.

⁶⁴Footnote. e.g. Trane Ltd., selected highly qualified engineers to train in sales management for six months at the parent company in the United States followed by a further six months in the United Kingdom. (Interview; Trane Ltd., Donibristle; 1967.)

⁶⁵Footnote. Some companies insisted on formal training at their schools while others relied on on-the-job supervised training with the trainee progressing to more sophisticated tasks with less supervision in time. In terms of formal training in engineering the time spent varied e.g. four weeks minimum in Cessna Industrial Products Ltd., and six weeks minimum in J. B. Butchart and Sons Ltd., to three months minimum in Stowe-Woodward Ltd. (Interviews of Industrialists: Fife: 1966-67).

⁶⁶Footnote. Note, however, that where males were involved in certain aspects of production apprenticeships were encouraged. e.g. Associated Electrical Industries Ltd., used day release to train apprentices with encouragement to train to O.N.C. and H.N.C. levels. (Interview: Associated Electrical Industries Ltd., Kirkcaldy: 1967).

⁶⁷Footnote. The newer companies in this industry group included Babygro Ltd., Hamilton-Carrhardt Ltd., Lyle and Scott Ltd., and Nelbarden Manufacturing (Scotland) Ltd. Older concerns which were establishing formal training schools included Hay-Robertson Ltd., W. Lumsden and Sons Ltd., J. Meikle and Co. Ltd., R. Stocks and Co. Ltd., and Winterthur (Silks) Ltd. (Interviews of Textiles and Clothing Manufacturers; Fife; 1966-67).

⁶⁸Footnote. Closely linked to this "spread" of growth along the lines of transport and communications is the formation of a hierarchy of growth-poles. It is this writer's opinion that Central Fife represented a lower order growth pole in this hierarchy. See Chapter VII.

⁶⁹Scottish Development Department, (1963), op. cit., paras. 58 and 142-154.

⁷⁰Footnote. See Chapter II; also Macgregor, D.R., (1966), op. cit., and Jones, H.R. and Pocock, D.C.D., (1966), Some Economic and Social Implications of the Tay Road Bridge. Scot. Geog. Mag., No. 2, Vol. 82, Sept. 1966, pp. 93-103.

⁷¹Macgregor, D.R., (1966), op. cit., pp. 81-82.

⁷²Scottish Council (Development and Industry), (1962), op. cit., Chapter 7.

Scottish Development Department, (1963), op. cit., para. 66.

⁷³Scottish Development Department, (1963), op. cit., para. 63.

⁷⁴Ibid., para. 61.

⁷⁵Interviews of New Establishments; Fife; 1967.

See also Macgregor, D.R., (1966), op. cit., ps. 86 and 87.

⁷⁶Ibid.

⁷⁷Macgregor, D.R., (1966). op. cit., p. 87.

⁷⁸Interviews of New Establishments; Fife; 1967. See also Chapter VII of this thesis.

Macgregor, D.R., (1966). op. cit., p. 88.

⁷⁹Macgregor, D.R., (1966). op. cit., p. 88.

⁸⁰Fife County Council, Issues of Retrospect 1958-66, op. cit.

⁸¹Footnote. See also Macgregor, D.R. (1966), op. cit., pp. 84-85 and Jones, H.R. and Pocock, D.C.D., (1966). op. cit., p. 95.

⁸²Fife County Council, (1966), "Retrospect" 1965, op. cit., pp. 47-48. Macgregor, D.R., (1966), op. cit., p. 89.

⁸³Scottish Development Department, (1963), op. cit., para. 61.

⁸⁴Ibid., para. 82.

⁸⁵Fife County Council, (1959), Retrospect 1958, Fife County Council, Cupar, p. 37.

⁸⁶Scottish Development Department, (1963), op. cit., para. 85.

⁸⁷Footnote. With reference to Table 6.22 and Map 6.14, most of the slum clearance programme in the Landward area was in Central Fife. e.g. see various issues of "Retrospect". (Fife County Council, Retrospect, op. cit., issues for 1957, pp. 22-23; 1958, p. 23; 1959, pp. 4-5).

⁸⁸Fife County Council, (1962), Retrospect 1961, op. cit., pp. 11-12; (1963), op. cit., p. 5; (1964), op. cit., pp. 11-12.

⁸⁹Footnote. The acreage of derelict buildings in the Lochgelly-Lochore District included an 16.25 acre site at Glenraig.

⁹⁰Interview: Fife County Council Planning Department: Cupar: 1965.

⁹¹Footnote. Information for the Lochore Meadows project was provided by Fife County Council Planning Department, See also, "Big new face-lift project in Fife." The Scotsman, Edition of March 16, 1966, Edinburgh.

⁹²Interviews of Industrialists; Fife; 1966-67.

⁹³Ibid.

Chapter VII.

THE LOCATION OF INDUSTRY IN FIFE: 1945-67.

The programme for development and growth stated that the economic problems of Central Scotland were the result of an imbalanced industrial structure based on declining and slow-growth industries, and that the solution to these problems lay in the introduction of new growth-type industries into the region (p. 2.15). This reasoning was verified by the investigation of the major industries in Fife between 1958 and 1967 (Chapter V). None of the industries significant in the industrial base of Fife in 1959 experienced more than a marginal expansion up until 1967, and none were expected to expand in the immediate post-1967 period (p. 5.86). Only the introduction of new industries between 1958 and 1967 prevented a drastic curtailment of industrial activity in the county, and only a continuing attraction of new establishments could offset the expected contraction of the traditional industries in the post-1967 period and so provide the basis for long-term growth in the area. This critical dependence of Fife on new industries made it necessary for this thesis to analyze the degree and nature of those industries introduced into the county in the 1958-67 period,¹ the factors which attracted them to Fife and their distribution within the area. Only thus could one assess Central Fife as an economic and/or a geographical growth-pole.

In this examination of industrial location in Fife it must be emphasized that this study was undertaken when the county

was still in the "youthful" stages of new expansion, the 1958-67 period being essentially a "testing time" in the area for new industrial development, the total effects of which had not been experienced by mid-1967. Nevertheless, significant progress had been achieved by 1967; employment in establishments located between 1958 and 1967 had reversed the decline in the manufacturing sector by 1965 (p. 3.26); the new industries introduced during this period included several in engineering and electronics (especially in the latter) which had the potential of "propulsive-type" industry able to generate rapid growth (p. 5.67); and by 1967 the growing concentration of industry in the Kirkcaldy-Glenrothes area was creating the initial stages of geographical polarization in Fife (p. 3.66). These indications were symptomatic of the changes in progress in Fife in 1967, changes which in time would alter markedly the industrial structure of the county making it more conducive to growth than at any point in the 1945-67 period.

The information used in this chapter was derived mainly from a personal survey of the new industries in the county and from Fife County Council Planning Department, but was supplemented by additional data from the records of H. M. Factory Inspectorate at Kirkcaldy.² This coverage was considered by the writer as more than adequate to assess the nature of the new establishments in Fife, their distribution in the county, and their potential for further expansion. Equally important, this information was sufficiently comprehensive to enable a weighting of the various factors influencing the location of new industries in Fife and also the relative effects of the measures used by the Central Government in industrial location.³ Similarly, the data permitted the identification of those factors to be pursued or modified to make

Fife more attractive to incoming industry.

Examination of the above information indicated that industrial location in Fife could be examined from 1945, thus rendering possible a comparison of location previous to 1960, when the entire Fife area was outwith the scope of direct government aid under the terms of development district status, with that of the post-1960 period when this help was available for parts of the county (p. 2.37). This division was obviously significant since the investigation revealed two distinct phases of industrial location in Fife from 1945. The first phase to 1957 was characterized by the location of only a few industries which varied both in type and in their location in Fife, and which had only minor effects on industrial development in the county; by contrast, the 1958-67 phase was noted for the rapid proliferation of new establishments forming a concentrated pattern of location within Fife, a pattern characterized by branch factories of parent companies from outside the county and having an almost revolutionary impact on the industrial base of the area.⁴ Note, however, that the character of this second phase was determined mainly by the rapid acceleration of industrial expansion from 1964, a burst of development closely associated with the opening of the Forth Road Bridge in that year. The vastly different nature and form of location in these two phases dictated an obvious emphasis on the 1958-67 period, especially from 1964, the earlier 1945-57 phase requiring only cursory treatment in this thesis.

Location of Industry: Phase 1: 1945-57.

Only eight new industrial establishments were located in Fife between 1945 and 1957, seven by 1948 and the eighth by 1952, with no further location to 1958.⁵ These new industries varied both

in type and in their distribution in the county (Table 7.01; Map 7.01). Two were food industries, two were engaged in textiles, two in clothing and footwear, and one each in metal manufacturing and in the production of concrete blocks (Appendix 7.01); and none had the ability to generate any effective industrial linkage. Spatially, the distribution of these new establishments was fairly widespread throughout the county with no readily apparent locational pattern, the Dunfermline, Leven, and Cupar areas each attracting two new establishments, the other two locating in Kirkcaldy and Cowdenbeath respectively (Map 7.01).

The dispersed locational pattern of these eight new establishments resulted from the variety in industry types and the needs of each in location. The textile and clothing and footwear industries located in districts with a background of similar manufacturing enabling them to use the labour skills in these areas;⁶ the firm in metal manufacturing was one of several located in Scotland to serve the Scottish market;⁷ the food industries and the company manufacturing concrete blocks were localized concerns utilizing local "raw materials" and serving a local market.⁸ This lack of specific emphasis on any one factor in the location of new industry in Fife in this phase contrasted with the 1958-67 period when the availability of trainable labour and of serviced space dominated the location decisions of the establishments introduced into the county.

A further characteristic of this earlier phase of industrial location was that the new establishments were spawned mainly from within the county. Only two were controlled by non-indigeneous owners, the textile manufacturer at Dunfermline being a branch subsidiary of the Dunlop Group of industries from England and the parent company of the firm engaged in metal manufacturing at

Kirkcaldy having its headquarters in England.⁹ This again contrasted with the later period when the proliferation of branch factories of concerns mainly from England and North America dominated the new industries entering Fife.

Finally, the establishments located in the county in this earlier phase of development had little effect on the area other than providing some additional employment. None possessed the attributes of "propulsive-type" industry, and the total employment in these new establishments in 1967 was estimated to be only 720, mostly in the Dunfermline area with lower numbers in Kirkcaldy, Cupar, and Leven¹⁰ (Table 7.01). Overall, the 1945-57 phase of industrial location in Fife was virtually insignificant in the development of the county's industry as it existed in 1967, most of the changes from 1945 being attributable to developments in the 1958-67 period.

Location of Industry: Phase 11: 1958-67.

The second phase of industrial location in Fife began in 1958 and is still in progress. It initiated far-reaching changes in the industrial base of the county, the full effects of which will become increasingly more significant and clearer in time. Notably, it witnessed the introduction of new growth-type industries in engineering and especially in electronics, industries which not only helped compensate for the contraction experienced in the county's traditional sector of industry, but also laid the foundations for future expansion (p. 5.67). Compared with the previous period, the 1958-67 phase of industrial location represented a second industrial revolution in Fife; the number of new establishments accelerated appreciably; the size and type of the industries introduced were more conducive to growth, both within

each industry and in their potential to generate "linked industries"; the emerging pattern of location was more concentrated than in the 1945-57 phase of location; and the incidence of non-indigenous control was much higher with a growing emphasis on branch establishments apparent by 1967.

While it might have been convenient to assess the 1958-67 phase of industrial location in Fife in two parts, 1958-63 and 1964-mid 1967, it was decided to treat the developments in the county over the longer time span since the trends in location were similar throughout the entire period. In particular, these trends indicated a high incidence of engineering, electrical, and clothing establishments locating in Fife in a pattern emphasizing the industrial arc of the county, especially the Kirkcaldy-Glenrothes area and locations at the northern bridgehead of the Forth Road Bridge: the trends also indicated a changing structure of industry in the county due to the influx of branch factories from regions outwith Fife, notably from England and North America. However, one must stress that these trends, though similar throughout the entire period, accelerated markedly from 1964 as a result of changes in the general economic climate within the United Kingdom, of the clearer definition of government aid as outlined in the programme for development and growth, of the designation of Kirkcaldy-Glenrothes as a development district in 1963, of improving transport and communications, and of the realization (gained from experience in the 1958-63 period) that Fife was a favourable area for industrial expansion. This acceleration of trends in the various indices noted above will be shown throughout this section of the thesis.

Any evaluation of industrial location in Fife had to

recognize the needs of the county in this context. These needs were both short-term and long-term. In the short-term, the introduction of new industries was necessary merely to compensate for the loss of employment as a result of the decline of the older industries, whereas, in the longer-term, the area had to attract growth-type activities to diversify and strengthen its economic base and so generate industrial growth and development. It is this writer's opinion that Fife experienced a degree of success in both its short- and long-term aims, although more time is required to assess the complete effects of the rapid influx of new industries into the county from 1958, and especially from 1964.

The analysis of the new establishments which located in Fife between 1958 and mid 1967 revealed ample evidence of growth and of the initial stages of the formation of both an economic and a geographical growth-pole. In terms of the numbers of new establishments and the types of industries represented by them, the record of the county in this period was most impressive. Seventy-nine new establishments, sixty-seven (84.8%) of which were in the manufacturing sector, located in the area from 1958, notably from 1964 when the trend accelerated markedly (Table 7.02). Further, and of vital significance in the context of Central Fife as a growth area, a large percentage of these new establishments were in industries which were experiencing growth at the national level, including some which possessed the potential for further rapid expansion.¹¹ Table 7.02 indicates clearly that engineering (24.0%), electrical goods (predominantly electronics) (17.7%), and textiles-clothing (mainly clothing) (17.7%) were the principal industry groups represented;¹² and examination of these industry types showed that those in the engineering-electrical goods sector had the potential

to form an economic growth-pole in Fife (p. 5.67). This was especially true of the electrical goods (electronics) industries in the county, although the polarization process was being delayed by improved transport linkages with the south and by the limitations imposed by small-scale operation (p. 5.77).

While the development of an economic growth-pole in Fife was open to a degree of question, and even in 1967 remained more potential than real, little doubt existed that the initial stages in the formation of a geographical growth-pole had been achieved by that date. The pattern of new industries locating in Fife in the 1958-mid-1967 period emphasized Kirkcaldy-Glenrothes and to a lesser degree Dunfermline-Inverkeithing, these two zones attracting 82.2% of the new establishments, 50.6% in Kirkcaldy-Glenrothes and 31.6% in Dunfermline-Inverkeithing (Table 7.02; Map 7.02). This concentration was relevant to each industry group, only in textiles and clothing and to a lesser extent in other industries in manufacturing did other areas receive significant representation in terms of the number of new establishments (Table 7.02). Moreover, this pattern of concentration was mainly the result of developments from 1964, from which date location in Fife stressed the designated growth area and especially the growth nodes of Glenrothes New Town and Hillend-Donibristle¹³ (Table 7.02). Without doubt the official policy to encourage new industries and to channel them into the selected growth area was having the desired effect in Fife

Using employment as a growth index,¹⁴ the locational pattern of new industries strengthened the claims of the Kirkcaldy-Glenrothes area as the principal centre of growth in Fife during the 1958-mid 1967 period (Table 7.03; Map 7.02). In the context of Central Fife as a growth area, Table 7.03 reveals several significant

indications of growth. Firstly, the acceleration in growth in employment provided by new establishments from 1964 was apparent, this despite the fact that the total additional employment from industries locating in the 1964-mid 1967 period was a gross under-estimation of the total expected when these establishments attained their employment targets (Chapter 111, ref. 27). Secondly, in terms of the provision of employment, the electronics sector, mainly as a result of growth from 1964, was the principal generator with engineering and textiles-clothing making valuable contributions. Thirdly, the distribution of new employment emphasized the industrial arc of the county, especially the Kirkcaldy-Glenrothes area with a secondary pole developing in Dunfermline-Inverkeithing by 1967,¹⁵ the emergence of Kirkcaldy-Glenrothes as the principal growth centre in this index resulting from growth mainly in the electronics sector from 1964 (Map 7.02).

Accepting that the new establishments which located in Fife between 1958 and mid-1967 had initiated growth both in the numbers of new factories (and consequently in the area occupied by these factories)¹⁶ and in employment, and thus were important in any evaluation of Central Fife as a growth area, the administrative structure of these establishments (notably the control exerted by concerns based outwith the Fife area) slowed down the formation of industrial linkages essential to the emergence of an economic growth-pole in the area (p. 5.91). Industrial location in Fife was vitally dependent on sources from outwith the county¹⁷ (Table 7.04), and consequently the new establishments located in the county were mainly branch factories of firms with headquarters outside of Fife, notably in North America, England and in other parts of Scotland, especially Central Scotland¹⁸ (Table 7.05). Examination of the

employment provided by these new establishments by 1967 endorsed this high degree of dependence on industries introduced by concerns based outwith Fife, especially those from England and North America (Table 7.06).

Overall, the inter-relationships between the sources of the new establishments in Fife and the type of industry, the provision of employment and of further potential growth, and the structure of the new industries introduced, indicated clearly the dependence of Fife on areas outwith its limits for its development and growth. In this the English and North American influences were most pronounced. English establishments were the most numerous of those located in Fife between 1958 and mid-1967, representing 30.4% of the total interviewed (Table 7.04); and they covered a wide range of industries, notably engineering (19.0% of the total new establishments of English origin interviewed), electronics (28.6%), textiles-clothing (19.0%), and other industries in manufacturing (28.6%) (Table 7.04). Together, these establishments from England employed as estimated 4,201 (54.8% of the estimated total additional employment in all new establishments interviewed) in 1967, mostly in electronics (3,040) but with contributions from engineering (572), textiles-clothing (350) and other industries in manufacturing (238) (Table 7.06). The structure of the new establishments from England showed a heavy dependence on branch factories (66.7% of the total new establishments of English origin interviewed), notably in the electronics sector, and on branch relocations (19.0%)¹⁹ (Table 7.07).

The North American establishments introduced into Fife were predominantly engineering (41.2% of the total) and electronics (35.3%)²⁰ (Table 7.04). These establishments employed an estimated

2,048 in 1967, again mainly in engineering (817) and in electronics (959) (Table 7.06), a labour force which underestimated the ultimate impact of North American firms on employment since several located in Fife only in late-1966 and early-1967 and were not in production at the time of interview.²¹ As expected, the structure of the new establishments of North American origin was overwhelmingly that of the branch factory, 94.1% being new branches and the remaining 5.9% a branch relocation from Manchester, England²² (Table 7.07).

The new establishments of Scottish origin were much less effective than those from England and North America, both in the short-term provision of employment and in the long-term aim to generate further growth. They represented 24.6% of the total new establishments located in Fife between 1958 and mid-1967 (Table 7.04), and were mainly engaged in textiles-clothing (29.4% of firms of Scottish origin interviewed), engineering (23.5%) and in other industries in manufacturing (23.5%) (Table 7.04). The effects of the type and nature of the industries of Scottish origin were reflected in the employment they provided by 1967 (1,353); most were in textiles - clothing (651)²³ and in engineering (574),²⁴ the work force in the other sectors being negligible in the overall pattern (Table 7.06). The structure of the new establishments of Scottish origin indicated a branch factory emphasis (64.7% of the total new establishments of Scottish origin interviewed), but they included a higher incidence of complete relocations and new concerns than those with an English or North American background (Table 7.07).

The remaining 20.9% of the new establishments interviewed were of local (Fife) origin (Table 7.04), but their impact on

industrial development in Fife was minimal. Most were service industries (50.0% of firms of local origin interviewed) with some in engineering (23.5%), and were mainly parasitical on the growing industrialization spawned from areas outwith Fife.²⁵ Employment from these new establishments (59) was insignificant in the overall pattern (Table 7.06) and was unlikely to change appreciably in the immediate post-1967 period. With the exception of one firm in engineering and one other in manufacturing industry,²⁶ all the establishments of local origin were new concerns (Table 7.07).

Overall, the analysis of the sources of origin of new establishments introduced into Fife between 1958 and mid-1967 and the interrelationships of the origins of these establishments with the nature and type of industry, the employment in these industries, their potential for further expansion and their administrative structure, confirmed the assertions of both the Scottish Council (Development and Industry) and the Scottish development Department that the Scottish Economy required the influx of new industries, especially growth-type industries, to strengthen the economic base of the country and generate long-term growth.²⁷ This was valid in the Fife case study in which the contributions of the engineering and the electronics industries from England and from North America generated both employment and also the potential for further growth, this being especially true of the electronics sector.

In summary, the policy to attract new industry to the Fife area was successful in both its short- and long-term aims, particularly in the former. Even with employment still to be realized from establishments located between 1958 and mid-1967, the jobs provided up until mid-1967 (7,761) (Table 7.03) not only

partly compensated for the decline in the industrial base of the county, but actually resulted in growth in the secondary sector (p. 3.26). As the estimated additional employment in the new establishments materialized it was obvious that the short-term need to provide employment in Fife was in process of being accomplished.

Compared with the apparent success of the new establishments in meeting the short-term requirements of the county, the evaluation of their effects on the longer-term need to initiate self-generating growth was somewhat less obvious. Without doubt, the introduction of new establishments from 1958, particularly those in the engineering and, more so, in the electronics growth sectors, had diversified and strengthened the industrial base of the county and had rendered it more conducive to growth (p. 3.60). However, the survey of new industries in Fife had made it equally apparent that the low order of the scale of operation, together with the branch factory structure of the new establishments and with the improvements in transport and communications facilitating the "importation" of "raw material" inputs from the south,²⁸ had slowed the process of polarization in the county and had delayed the formation of an effective economic growth-pole based on electronics (p. 5.76). Nevertheless, signs of progress towards the formation of industrial linkages in the electronics sector were emerging by 1967 and would probably increase in time as the momentum of growth in Fife accelerated (p. 5.77).

Thus the formation of an economic growth-pole in Fife in 1967 was more one of potential than of reality but, on balance, little more could be expected at that time. The county was still in the "youthful" stages of attracting new industries, many of which were not yet in production in 1967; the electronics industry which would

form the basis of the growth-pole in Fife had been "grafted on" to the industrial structure of the area and would require time to consolidate, to establish linkages and to train its labour force; the area depended on the "spread" effects mainly from economic expansion in the London and South-East England "growth area" for its development and would continue to do so in the foreseeable future. Nevertheless, it is this writer's considered view that polarized growth will occur in Fife, but as this growth polarizes around the electronics industry one must not envisage the rapid development of a major economic growth-pole such as exists in London and South-East England but rather a third order growth-pole placed in a hierarchy of growth-poles within the national mesh.²⁹ In this hierarchy, Fife would constitute, along with the other areas designated in the Central Scotland programme, a third order growth-pole within Central Scotland which would represent the second level in the hierarchy, secondary to the existing first order pole in the south. Acceptance of this would remove criticisms that the growth area concept as applied to the Central Scotland situation would not generate self-sustained growth,³⁰ but that growth from the introduction of new establishments would merely be the result of the multiplier effects of increased employment in the region. Central Fife as a third order growth-pole would operate as a growth centre within the Fife area, would experience the effects of polarization and in time would initiate spread effects to the areas abutting it, but its scale of operation would prevent the emergence of a growth-pole capable of challenging the supremacy of the first order growth area in the United Kingdom upon which it relied for its sustenance.³¹

Finally, the location of the establishments introduced into Fife from 1958 initiated the formation of a geographical growth

centre in the Kirkcaldy-Glenrothes area, notably in the new town. This was apparent by the locational analysis of the new establishments based on numbers (Table 7.02), on employment (Table 7.03), on types of industry introduced, and on the area occupied by the new industries (Table 7.08). Moreover, indications existed that Dunfermline-Inverkeithing would become a secondary growth centre in the Central Fife area when the industries located there in the 1966-mid 1967 period built up to their estimated production and employment targets (p. 7.09).

Factors in Industrial Location in Fife: 1958-mid 1967.

The proliferation of new industrial establishments in Fife from 1958, and especially from 1964 onwards, indicated that Fife had become an attractive location for new industry. This fact, together with the importance of new industries to development and growth in the county (p. 3.60), made an investigation of the factors influencing industrial location in the Fife area crucial to this thesis. Only by identifying these factors and by evaluating the relative significance of each as an attraction to new establishments could one assess the advantages of Fife as a location for industrial development.

The information for this section of the thesis was derived from the personal survey of the industrial establishments located in Fife between 1958 and 1967 (p. 7.02). This survey interviewed fifty-eight of the sixty-seven new manufacturing establishments, a coverage of 86.6% which was more than sufficient for a valid assessment of the factors relevant to industrial location in the county.³² It covered all the main sectors of new industry introduced from 1958 and was particularly comprehensive in the engineering and

electrical goods sectors (Table 7.09).

The location of each new industry in Fife between 1958 and 1967 was the end product of a series of decisions taken by that industry. These decisions considered factors operating outside the control and the geographical limits of the area as well as the advantages gained by locating in Fife, and for most of the new establishments it was only in the later stages of this decision-making process that considerations were narrowed sufficiently to include Fife.³³ This study shows that the location of new industries in Fife depended on a demand for additional space for manufacturing as a result of economic expansion in the industries concerned,³⁴ and that the location of this space was strongly influenced by the problems of expanding in situ in certain parts of the United Kingdom and by government policies on industrial location.

Without the stimulus of economic expansion little doubt exists that location in Fife would have been drastically curtailed. Table 7.09 shows that 86.2% of the establishments interviewed were motivated in the search for additional space by a rising demand for their products. This economic expansion was effective in initiating the search for space in every sector of new industry in Fife but was especially so in electrical goods industries³⁵(Table 7.09). Moreover, the impact of economic expansion was also seen in that most of the new establishments located in Fife were branch factories manufacturing products similar to those in parent plant locations³⁶(Table 7.10).

Against this background of the need for additional factory space, the location of this space was determined by the requirements of the industries concerned but more so by the restrictions imposed on location by problems of labour shortages and of spatial congestion in certain parts of the United Kingdom and by government controls

on the distribution of new industry.

The analysis of the requirements in location sought by the new industries interviewed in Fife is summarized in Tables 7.11 and 7.12. Most (53.4%) sought a market location. Table 7.11 indicates that the desire for a market location was stressed by every industry type except textiles-clothing. However, an analysis to the origins of the new establishments was much more meaningful in this context and showed that the statistical emphasis on a market location had to be tempered as a result of the impact of North American concerns (Table 7.12), and by the scale of market envisaged by the new establishments (Table 7.13).

Table 7.12 shows that a market location was most important to North American and to local (Fife) establishments, but of relatively lower significance to those of English and Scottish origin. Table 7.13 indicates that the North American companies sought a location to serve the British and/or the European markets with an emphasis on the dual market,³⁷ this in contrast to the English- and Scottish-based concerns which were attracted to Fife by markets provided by Scottish and Fife demand. The establishments of local origin were located to satisfy a growing local demand.³⁸ This variation in the scale of market envisaged by the new industries affected the choice of each in location. For North American concerns the choice was between areas in the United Kingdom, whereas for the English- and Scottish-based firms the choice was much narrower since most were already in production in the United Kingdom and a market location for them meant Scotland and in some instances, Fife. For the local establishments the search for space was more a consideration of site than situation. Overall, this variation reduced the value of market as a significant factor in location relative to

the other influences cited as requirements in location by the new industries in Fife, influences such as available labour and space (Tables 7.11 and 7.12).

The other requirements sought by industry were labour (17.2% of the new establishments interviewed in Fife), labour in combination with space (12.1%) and space alone (10.3%)³⁹ and were relevant to every sector of new industry in the county and particularly to textiles and clothing (Table 7.11). Most of the establishments in this category originated either in England or in Central Scotland (Table 7.12), a relationship which was linked with problems of expanding in situ in certain areas of the United Kingdom since most were branch factories of firms prevented from expanding at their existing locations by shortages of labour and/or spatial congestion.

In theory, expansion in situ was open to every establishment interviewed in the Fife survey except those of North American origin and those classified as completely new enterprises. This represented 58.6% of the establishments interviewed (Table 7.14) but, in practice, as a result of the desire for a location near market or near raw materials, but mainly to problems of developing at existing locations,⁴⁰ none did expand in situ (Table 7.14).

Shortages of labour, spatial congestion, spatial congestion in combination with labour shortages and with other factors were the deterrents to in situ development (Tables 7.15 and 7.16), and while spatial congestion constituted the principal limitation in the engineering sector compared with shortages of labour in electronics and with spatial congestion combined with labour shortages in textiles-clothing and in other industries in manufacturing (Table 7.15), an analysis to the origins of the establishments was

more meaningful to explain this pattern (Table 7.16).

To the establishments of English origin (58.3% of the total affected by problems of developing in situ), shortages of labour and of labour in combination with spatial congestion⁴¹ were the important elements limiting expansion in situ. This was not surprising since most of these establishments originated from South-East England, mainly from London itself,⁴² where problems of labour and space were effectively curtailing industrial expansion (p. 2.17). In contrast, the industries of Scottish origin (37.5% of the total which experienced difficulties of expanding in situ) (Table 7.16) were more concerned with problems of spatial congestion than with shortages of labour.⁴³ Again this was not surprising since, with the exceptions of local labour shortages in the textile-clothing industries in Dundee, in Edinburgh and in the Borders,⁴⁴ all the Scottish-based establishments in Fife had their origins in areas possessing a sufficiency in labour supply, most originating from areas in the Central Lowlands designated as development districts on the criterion of higher than average unemployment.

The overall effect of the problems limiting in situ development was to favour a new location for the additional space required by each company concerned. Most preferred to locate in a government assisted area where space and labour were available and where financial inducements proved a decided incentive. Of the firms which, in theory, had the choice of expanding at their existing locations, only 8.8% expressed a desire to locate in a non-assisted area but in each case the necessary industrial development certificate was refused.⁴⁵

Every establishment which eventually located in Fife was faced with a choice between an assisted and a non-assisted area,⁴⁶

but despite the fact that 29.3% actually considered locating in a non-assisted area, in the final analysis most preferred an assisted area location.

Of the concerns which considered a location in a non-assisted area, most were in engineering and in electronics and were predominantly of North American origin⁴⁷ (Table 7.17). More than half of these establishments (52.9%) voluntarily rejected the non-assisted areas due mainly to labour shortages and labour shortages in combination with spatial congestion (Table 7.18): the remaining 47.1% preferred a location in a non-assisted area but were refused the necessary industrial development certificate⁴⁸ (Table 7.18). Thus with the exception of this latter group of establishments, most of the concerns which ultimately located in Fife preferred an assisted area location.

The reasons for a location in an assisted area varied considerably, some establishments being attracted by market, some by government incentives, others by the availability of labour and of space, and one by raw materials⁴⁹ (Table 7.19).

The Fife case study showed that, numerically, the attraction of the Scottish and/or local Fife market was the principal force in the preference for an assisted area location.⁵⁰ However, it must be noted that the number of establishments indicating this preference was inflated by several small local firms and by the influx of small-scale enterprises from England. Using employment as an index, in 1967 the establishments in this category (34.0% of the total preferring an assisted area location) employed an estimated 527 which was only 7.5% of the estimated total employment generated by the industries preferring an assisted area location (Table 7.19).

The availability of labour and of labour combined with

space was another major reason for the preference of an assisted area location⁵¹ (Table 7.19). Most of the establishments in this category were in engineering and in electronics, both of which required ample supplies of labour for efficient operation,⁵² a requirement which explains the effectiveness of this group of industries in providing 75.1% of the employment generated by establishments preferring an assisted area location⁵³ (Table 7.19).

The preference for a location in an assisted area mainly to qualify for government incentives was relevant to 24.0% of the concerns in this category (Table 7.19). These establishments considered themselves sufficiently mobile to locate in development districts and so avail themselves of the financial incentives provided by the central government in these districts. Most were in textiles and clothing, the rest in engineering, electronics and in other industries in manufacturing but together they employed only 15.3% of the total employment created by firms preferring an assisted area location (Table 7.19).

Of the establishments preferring an assisted area location because of available space,⁵⁴ the ready provision of premises was significant in attracting them to Fife. However, most were small concerns employing only 1.5% of the total jobs provided by firms in this group, and they had only a minimal impact on the overall pattern (Table 7.19).

In general conclusions at this stage of the location decision process, the time was obviously ripe to facilitate the spread of industry into the peripheral or assisted regions of the United Kingdom. The economic climate was amenable to industrial expansion, an expansion which was creating a demand for additional space for manufacturing industry. The possibilities of satisfying

this demand for space by expansion in situ and/or by locating new establishments in existing industrial concentrations, notably in the Southeast Quadrant, were restricted by the increasing shortages of labour and/or spatial congestion in these areas and by the need for an industrial development certificate. Both these restrictions intensified the "spread effects of polarization" towards the assisted areas where space was available, where labour was apparently available (assuming here that the unemployed constituted suitable labour), and where government incentives cushioned the costs incurred in the initial stages of production in a new location. Overall, the situation concurred with the growth area concept in its application to regional inequalities in development. The main polarized zone in the United Kingdom was showing signs of over-concentration, particularly in terms of available labour, thus creating conditions strengthening the spread effects to the peripheral regions (p. 2.08), effects which were accelerated by government policies controlling industrial expansion in the non-assisted areas while favouring the location of new establishments in the assisted areas.

The final stage in the location-decision process was the selection of one of the assisted areas and it was only at this stage that the advantages of a Fife location were considered by most of the firms concerned (p. 7.16). In certain cases the choice of Fife was positive to gain direct advantages from a location in the area,⁵⁵ but in others the county was chosen only after the elimination of several other assisted areas.⁵⁶

The choice of Fife as a location for new industrial establishments was influenced by a range of factors. These factors and their relative effectiveness are shown statistically in Table 7.20 where they have been grouped into five main categories namely,

"Geographical Situation", "Labour", "Premises and Sites", "Local Factors", and "Other Miscellaneous Factors". This table ranks the frequency of each factor mentioned by the establishments interviewed in the Fife survey, and also the frequency of each factor considered a major influence, in the decisions to locate new industrial space in the county. The analysis of Table 7.20 showed clearly that available labour and, to a slightly lesser extent, the provision of premises and sites were the main attractions for new industrial establishments; and interviews of the industrialists in Fife showed equally clearly that the attraction of these elements largely depended on the improving accessibility of the Fife area. The other factors were less significant in influencing the location of new industry but the provision of housing for key workers and the work of the local authorities in Fife at times "tipped the balance" in favour of the county.

Labour as a Factor in the Location of Industry in Fife: 1958-mid 1967.

Available labour represented the principal attraction for new industry in Fife during the 1958 - mid 1967 period, thus verifying the conclusions of the Scottish Council and the Scottish Development Department on the assets of available labour in growth and development in Central Scotland.⁵⁷ This "pull" of labour was essentially quantitative, each new establishment realizing that training in its own particular processes was basic to the formation of an efficient work force.⁵⁸ As a factor in the location of industry in Fife, labour influenced the decisions of 75.9% of the new establishments interviewed, half of them considering it of major importance (Table 7.20). Most (58.6%) were influenced by the availability of "trainable" labour and 34.5% claimed that this was a major factor in their choice of a

Fife location. A further 8.6% stressed the availability of "trained" labour, 3.4% listing it as a major factor.⁵⁹ The remaining 8.6% in this category selected Fife as an area where they could develop suitable labour relations to avoid the restrictive practices, turnover and high costs of labour experienced in their existing locations; none considered it of major significance.

In terms of industry type, labour influenced the location decisions of every new industrial sector in Fife but was especially effective in the electronics industry (Table 7.21). "Trainable" labour as a "pull" in location was listed by 78.6% of establishments in the electrical sector compared with 72.7% in textiles-clothing, 50.0% in other industries in manufacturing and 42.1% in engineering. This ranking was strengthened by the attraction of "trainable" labour as a major influence in location, the respective percentages being 78.6% in electrical industries, 36.4% in textiles-clothing, 7.1% in other industries in manufacturing and 21.1% in engineering (Table 7.21). By comparison, "trained" labour influenced the decisions of only 14.3% of the electrical industries interviewed, 10.5% of the engineering establishments and 9.1% in textiles and clothing manufacturing. It was considered a major "pull" in location for 9.1% of the textiles-clothing establishments and 5.3% of those in engineering⁶⁰ (Table 7.21). Finally, of the establishments which located in Fife partly to develop labour relations on a sound basis, most were in the electrical and engineering sectors (Table 7.21). This desire for suitable labour relations affected the decisions of 28.6% of the firms in electrical and 5.3% in engineering, but none considered it a major factor in location.

In summary, the attraction of labour in the location of new establishments in Fife was effective in each sector of industry

represented by these establishments and was particularly effective in electronics and textiles-clothing. Further, the emphasis was on the availability of "trainable" labour, each firm introduced into the county accepting the need to train and retrain the work force in their own particular activity. Notably, the industry groups most influenced by available labour were those using female labour which was readily available in Fife (p.5.71). By contrast, the "pull" of available labour was weaker for new establishments in engineering and in other industries in manufacturing; these sectors depended on male labour which was more readily available throughout the United Kingdom and, in addition, their quantitative demand for labour was lower, especially in other industries in manufacturing.

However, in this assessment by industry type, the origins of the new establishments were crucial since most were branch factories, branch relocations and complete relocations of capacity (Table 7.07). The effects of the origins of the new establishments on the emphasis placed on available labour in location by each sector are summarized statistically in Table 7.22. "Trained" and "trainable" labour influenced the location decisions of 67.2% of the new establishments interviewed, most originating in England (41.0% of the total influenced by available labour) and North America (38.5%), and the remainder (20.5%) from Scotland. In an analysis by industrial sector, establishments of English origin were represented in every industry type, particularly in electrical, North American concerns were strong in engineering and electrical, while those of Scottish origin were mainly in textiles-clothing (Table 7.22).

The statistical breakdown by industry type to source of origin as shown in Table 7.22 was as expected. In the electronics sector, six of the thirteen establishments influenced by available

labour were English and all originated in the London area where existing labour shortages constituted a significant factor preventing expansion in situ; five established branch factories in Fife; the sixth was already a branch factory and it was relocated at Dunfermline. Another six were North American, two of which had considered locations in non-assisted areas but had rejected them due to shortages of labour. The origin of the Scottish firm in electronics influenced by available labour was not an effective factor in this influence.

In textiles-clothing, of the nine new establishments citing available labour as a factor in their location decision, seven (four Scottish and three English) originated from areas in which competition for labour from other textile-clothing industries and/or alternative activities was effectively reducing the supply of labour and affecting its suitability;⁶¹ this experience of competition increased the significance of available labour in their search for new space.

The attraction of labour in location was lower in the engineering sector than in electronics or in textiles-clothing (Table 7.22), and in part this was due to the origins of new engineering concerns in Fife. In this, the high proportion of local firms each employing a limited number of employees, together with others of Scottish origin which intended to transfer employees from their existing locations, were contributory factors.⁶²

Labour as a "pull" in location for other industries in manufacturing was less effective than in the other sectors mainly as a result of the small-scale nature of the enterprises in this industry group and not due particularly to the origins of the firms concerned.

Overall, the attraction of labour was greatest for

establishments of English origin, was of lesser importance but still significant for North American concerns, and was least effective for those of Scottish and local (Fife) origins. This was only to be expected. The branch factory emphasis (p. 7.10) and the shortages of labour in England, notably in the Southeast Quadrant, from whence most of the new establishments in Fife originated, rendered it natural that concerns of English origin would place a premium on a location providing an ample supply of labour. By contrast, Scottish- and local-based firms, with the exception of those in textiles and clothing affected by labour shortages in existing local areas, were less curtailed by problems of labour availability and were thus less preoccupied by labour as a factor in their decisions to locate in Fife.⁶³ The availability of labour as a "pull" in location for North American establishments was effective merely to satisfy the need for labour in industries employing large numbers, the source of origin being of minor consequence in this instance.

In assessing labour as a factor influencing industrial location in Fife it was also necessary to consider the availability and the suitability of labour not only between 1958 and 1967 but also to estimate the probable trends in these elements of labour in the post-1967 period. Such an evaluation has been covered in detail in another section of this thesis and it is sufficient here to state the conclusions drawn from that evaluation (Chapter VI).

In terms of available labour, the supply declined progressively during the 1958-67 period, particularly in the female sector. This decline occurred while the demand simultaneously increased but it did not unduly affect the development and growth of new industries in the county. The available trends indicated that the supply-demand situation in labour in Fife would deteriorate still

further in the post-1967 period but that it would not attain crisis proportions at least until 1971 when the position would be less clear. Overall, labour availability in Fife should neither limit further expansion in industries introduced into the county from 1958 nor deter the location of additional new establishments up until 1971.

The new industries in Fife expressed satisfaction with the quality of labour in the county, particularly in the female sector and especially when comparing it with many other parts of the United Kingdom, the response of the work force to training being significant in this assessment. The level of labour turnover and absenteeism had improved in time and was satisfactory to the new industries in the county; labour-management relations were good; and productivity was rising with the benefits of formalized training. This proven suitability of labour in Fife was expected to increase the attractiveness of the area for further industrial development and expansion in the post-1967 period.

Premises and Sites as Factors in the Location of Industry in Fife:
1958-mid 1967.

The provision of premises and sites represented a prime element in the positive incentives of the central government to attract industry to the designated development districts (p. 2.23); and the experience in Fife between 1958 and mid-1967 fully endorsed this measure as an effective tool in fostering industrial development in the specified areas. Next to the availability of labour, the provision of premises⁶⁴ was the most important factor in attracting new industry to Fife in the 1958-mid 1967 period, 65.5% of the new establishments interviewed citing it as influential in their decisions to locate in the county and 29.3% evaluating it as of major

consequence (Table 7.20). It was effective in every sector of new industry in Fife but was most pronounced in electrical goods (92.9% of the new establishments interviewed in this industry group), and in other industries in manufacturing (71.4%) (Table 7.23).

The above variation in effectiveness by industry type was the result of the differences in the nature of the new industries and in their respective needs in premises and sites. These needs by industry group are summarized in Table 7.24. Overall, of the establishments citing premises and sites as factors in their decisions to locate in Fife, most (44.7%) sought premises to satisfy low order space needs, 34.2% were influenced by the availability of premises and sites for immediate occupation, a further 7.9% by available premises and sites away from industrial estates and the remaining 13.2% by premises and sites satisfying special requirements. In this analysis it was obvious that the needs of each industrial sector in premises and sites varied, notably the desire for immediate occupation and for special conditions in electrical goods and the emphasis on low order space needs in other industries in manufacturing (Table 7.24).

In the electrical goods sector, of the establishments citing available premises and sites as influential in their decisions to locate in Fife, 46.2% were attracted by space available for immediate occupation (Table 7.24). This demand reflected the rapid expansion of this industrial sector and was met in Fife by the use of older premises and advance factory space,⁶⁵ which were used to train key personnel, to test the available labour in the area and to establish a base while acquiring more permanent, generally purpose-built, premises. Most establishments in this category located either in Kirkcaldy-Glenrothes or in the Dunfermline-Hillend-

Donibristle area (Map. 7.03).

The need for special site conditions was also significant in the electrical sector as an influence in location. It affected 30.7% of the electrical firms in this category, most seeking a site unaffected by subsidence in a "clean air" location,⁶⁶ and one for premises situated away from any built-up, urban area.⁶⁷ These conditions were met at Glenrothes and Donibristle and on the outskirts of Lochgelly respectively (Map 7.03).

Low order space needs affected only 15.4% of the electrical firms influenced in location by available premises and sites, these requirements being satisfied by small premises at Glenrothes and Donibristle.⁶⁸ In addition, one establishment specified that the availability of premises at a site removed from the industrial estates in the county was a factor in their decision to locate at Cowdenbeath.⁶⁹

In the engineering sector, the influence of available premises and sites on location was less effective than in the electrical industries, mainly since engineering establishments had more stringent needs in building specifications which greatly limited the use of temporary premises. Consequently engineering firms, particularly the larger concerns from outside the local Fife area, once the decision to locate in Fife had been taken, sought permanent accommodation for their enterprises. Of the engineering establishments mentioning available premises and sites as a factor in location, 40.0% were attracted by space for immediate occupation with locations in advance factories in Glenrothes and Hillend.⁷⁰ A further 40.0%, all small-scale and local concerns parasitical on the newer and larger engineering and electrical establishments introduced into the county, were influenced by the mere presence of factory space in

Glenrothes and in Donibristle.⁷¹ The remaining 20.0% in this category sought premises and sites removed from industrial estates and located at Cowdenbeath and Cardenden (Map 7.03).

The textiles-clothing establishments influenced by available premises in location represented only 45.5% of the total interviewed in this industry group (Table 7.23). Of this percentage, three-fifths were attracted by premises available for immediate occupation, and the remainder's need for low order premises was met by existing premises at Cowdenbeath and Donibristle.⁷² (Map 7.04). Clearly the small-scale nature of the establishments and the relative ease of meeting the low specifications in their requirements in premises and sites were major factors in the statistical breakdown of the influence of available space on location for the textile and clothing industries.

Finally, although the location decisions of 71.4% of the other industries in manufacturing were influenced by the availability of premises and sites in Fife, the numerical significance of this percentage was greatly reduced by the low order requirements of this industry group for space (90.0%). These requirements were met by available premises and sites at Glenrothes and Donibristle⁷³ (Map 7.04). The other establishment in this group, a food industry, was influenced by the availability of farmland essential to its production.⁷⁴

In summary, the analysis of the role of available premises and sites in attracting new industrial establishments to Fife indicated clearly that the emphasis placed on the provision of space in this context, both by the Scottish Council and by the Scottish Development Department (p. 2.23) was correct. The survey of new establishments in Fife showed that the availability of premises and

sites was extremely influential in drawing new industries into the county. This provision of space constituted an effective tool for every sector of industry introduced into Fife from 1958 and was especially effective in the electrical growth sector.

The Fife survey also showed the apparent need for a flexible policy in the provision of premises and sites to satisfy the varying requirements of incoming industries. Some required space for immediate occupation to train key personnel, to test the suitability of the area, to establish a base from which to develop their production; and the experience of the 1958-mid 1967 period indicated the importance for these concerns of older premises and advance factory space, both of which should be further encouraged. For other incoming establishments, by reason of their small-scale nature and/or low order space requirements, the mere provision of premises on serviced sites proved an adequate attraction; many in this category were parasitical industries, depending on the new larger establishments and the general rise in industrial climate for their sustenance, but they possessed the potential to develop as important elements of possible industrial integration in the area. In general terms, the space needs of these establishments were met at Glenrothes and at the former naval repair base at Donibristle, the use of which by Fife County Council proved invaluable in attracting smaller enterprises. Finally, the survey of new establishments indicated that a few required special conditions in premises and sites, either as a result of the processes involved and/or the types of products manufactured or a desire for a location divorced from the concentrations in the industrial estates. The benefits of concentrating premises in industrial estates are obvious but to maximize the pull of premises and sites in attracting new establishments, a certain

number of smaller and/or isolated sites should be provided to cater to industries having specific needs in premises and in their location.

The apparent attraction of Fife to new industrial establishments and the significance of premises and sites in this attraction suggested that the policy of providing space in the area was sufficiently flexible and effective in satisfying the varying requirements of the new industries. In accordance with the Local Employment Act (1963), premises were being constructed for sale or lease on favourable terms to industrialists locating in Fife, either on individual sites or in industrial estates; the Board of Trade and various local authorities in Fife were engaged in providing these premises and sites⁷⁵ (p. 2.23). In addition, several firms had qualified for the grant provided for industrialists constructing their own premises (p. 2.23). Obviously Fife was making full use of the incentives for the provision of premises and sites to attract new industries into the development districts.

The distribution of establishments citing available premises and sites as an influence in their location decisions showed both concentration in industrial estates at Glenrothes and Hillend-Donibristle and dispersion in localized sites elsewhere in the industrial arc of the county, the overall attraction of Glenrothes and Hillend-Donibristle for new establishments indicating the higher degree of available, suitable premises and sites at these locations.

Eleven industrial estates, ranging from a small 8-acre estate in Cowdenbeath to the 160-acre Mitchelstown Estate in Kirkcaldy, had been established in Fife by 1967 (Appendix 7.02). These estates were managed by several different authorities, four (Queensway, Viewfield, Eastfield and Woodside) by Glenrothes

Development Corporation in the new town,⁷⁶ two (Donibristle and Banbeath) by the Industrial Estates Management Corporation for Scotland, two (Hillend and Bellknowes) by Fife County Council,⁷⁷ and one each by Kirkcaldy Burgh Council (Mitchelstown), Cowdenbeath Burgh Council (North End) and Buckhaven and Methil Burgh Council (Sea Road)⁷⁸ (Map 7.05). Notably, all of these serviced sites were located on or in close proximity to ready access to and from the new Forth Road Bridge and thus to other parts of Central Scotland and to England, the location at Hillend-Donibristle being particularly favourable in this respect⁷⁹ (Map 7.05).

A striking feature of the development of industrial estates in Fife was their growth in time. The original nucleus in Glenrothes in the Queensway and Viewfield Estates was expanded by further developments of the Eastfield and Woodside Estates and by the growth and diffusion of estates to Hillend-Donibristle, Kirkcaldy, Cowdenbeath, Methil and Leven as demand for space accelerated in the 1960's. Most of this expansion dated from 1965 and the full impact would not be fully effective until the end of the 1960-69 decade. This growth of serviced sites and their diffusion throughout the industrial arc represented one index of the industrial expansion in the area and also an indication of the progressive nature of the local authorities who, by pressing for the right to establish and manage their own estates, indicated a determination to promote their own economic salvation.⁸⁰

The provision of premises available in advance of occupation was significant in attracting new industries to Fife in the 1958-mid 1967 period.⁸¹ In Fife, the provision of space in advance consisted of two elements, namely, the utilization of older premises, notably at the former naval repair base at Donibristle but also at

various dispersed locations in the industrial arc of the county, and the construction of new premises for lease or for sale in advance of occupation. In this context, the space at Donibristle proved invaluable for small-scale enterprises whose demand was for premises of a low order and for whom immediate occupation was an asset. The provision of space in the newer advance factory premises was similarly most effective for establishments wishing to enter production as quickly as possible, but was even more attractive to larger concerns for whom the opportunity to expand these premises in situ or to have newer, larger and sometimes purpose-built factories constructed in the same locality was an additional attraction.

This construction of advance factory space in Fife represented a crucial facet of industrial development between 1958 and 1968. In this period space constructed in advance of allocation or occupation was estimated at over 740,000 square feet,⁸² in a pattern emphasizing Glenrothes New Town (50.2% of the total) and Hillend-Donibristle (22.8%), with lesser isolated developments at Cowdenbeath (9.6%), Kirkcaldy (6.4%), Leven (4.2%), Lochgelly (3.9%) and Buckhaven-Methil (3.0%) (Table 7.25; Map 7.06). With the exception of locations at Cowdenbeath and Lochgelly this pattern of distribution correlated with that of industrial sites, most premises being built in the designated industrial estates in the county (Map 7.06). Moreover, as the rate of advance factory construction accelerated, notably from 1963 and especially from 1966, the pattern of distribution was more diffused throughout the industrial arc of the county (Table 7.25). This emphasis on the construction of advance space indicated the faith of the authorities in their ability to attract new establishments and in their expectations of demand both in areas of concentration (e.g. Glenrothes) and in

localized situations (e.g. Leven).

Purpose-built factory space was also effective in the pattern of the location of new establishments in Fife. The provisions allowing new establishments to construct their own premises or have them constructed by the authorities operating in the county were used by 34.5% of the establishments interviewed in the Fife survey⁸³ (Table 7.26). Most were in the engineering sector (15.4% in this category) which demanded more stringent specifications in their spatial requirements than establishments in the other industry groups.

In accordance with government legislation, new industrial establishments locating in the designated development districts could buy or rent their premises, either purpose-built or advance, at reasonable terms. This choice obviously made the attraction of an assisted area location more amenable to a wider range of prospective new establishments. In Fife in 1967, of the establishments interviewed, 63.8% rented their premises, most on a long lease basis⁸⁴ (Table 7.27). In terms of industry type, rented premises were favoured by establishments in the electrical sector (100%) and by other industries in manufacturing (64.3%), the division between leasing and owning premises in engineering establishments being more evenly divided (52.6% renting in 1967), while the textiles-clothing sector indicated a preference for ownership (63.6%). In an analysis of rented and owned premises relative to advance and purpose-built space it was obvious that establishments having their premises built favoured ownership but those accepting premises available for occupation at the time of the location decision preferred to rent their space: this was apparent in every sector represented by new establishments in Fife (Table 7.28).

Finally, low rentals for premises and the availability of

space for further expansion in situ influenced the location decisions of several concerns. Low rents were cited by 20.7% of the establishments interviewed, 3.4% considering it of major importance (Table 7.20). Most firms in this category were in electronics and in other industries in manufacturing.⁸⁵ The availability of space for further expansion influenced 36.2% of the concerns interviewed in Fife (Table 7.20) and was particularly effective in the electronics and in the engineering sectors.⁸⁶

In overall conclusions on premises and sites as factors in the location of new industries in Fife, it was obvious that by making available a wide range of sites, both in terms of location and of size, and by utilizing the means at their disposal to construct premises, either purpose-built or advance, for sale or lease on favourable terms to incoming industries, the local authorities in Fife were fully aware of the role of available premises and sites as an attraction to new industry. The availability of premises for immediate occupation, especially factories constructed in advance of demand, represented a particularly effective tool in attracting new establishments. In addition, every sector of industry showed an obvious preference for advanced space for rent relative to ownership. In contrast, establishments building their own premises or having them constructed for them by the authorities operating in Fife preferred to own these premises rather than rent them. Overall, the role and initiative of the local authorities in this context must be highly commended. Their policies were sufficiently flexible to meet the varying needs of the incoming industries and as experience in this field of attracting industry increased, this service should improve to the advantage both of the area and of the new establishments.

Geographical Situation as a Factor in Location in Fife: 1958-67.

The availability of trainable labour and of premises and sites were dominant factors in attracting new industrial establishments to Fife in the 1958-mid 1967 period, but the degree to which these elements were effective would have been reduced drastically had not the area been considered geographically accessible to raw materials and to market and to facilitate personal movement at the management level. This favourable evaluation of the area's situation implied an acceptable degree of efficiency in the available physical linkages and transport media and in the organization of both freight and personnel transfers.

The significance of Fife's situation as a factor in location is summarized statistically in Table 7.20. In terms of situation relative to market, to raw materials and to other miscellaneous elements,⁸⁷ 58.7% of the firms interviewed mentioned the favourable location of Fife as a factor in their location decisions, 22.3% considering it of major importance. Further, access to market was more significant than that to raw materials.⁸⁸ Access to market influenced 34.5% of the total firms interviewed with 15.5% holding it to be of major importance, whereas access to raw materials affected only 17.3% of the interviewees, 3.4% considering it a major factor. The remaining 6.9% considered Fife accessible since they were attracted by a location in proximity to other establishments in the area;⁸⁹ 3.4% held this to be a major factor in their decision to locate in the county.

An analysis pertaining to the significance of accessibility to market in a Fife location (Tables 7.29 and 7.30) showed that the new establishments depended on the British market, notably that in the Southeast Quadrant. This was readily apparent in terms of

frequencies of stated market (Table 7.29) and also in the more valid and meaningful statements of principal market of each establishment (Table 7.30). Of the establishments interviewed, 91.4% had their main market in Great Britain, 55.2% depending on the Southeast Quadrant, 3.4% on Northern England and 32.8% on Scotland, especially on the Central Industrial Belt. By contrast only 8.6% had their principal markets overseas,⁹⁰ 3.4% in North America and 5.2% in Europe (Table 7.30). This market orientation was even more pronounced in terms of employment. Employment in establishments producing mainly for the Southeast Quadrant market represented 84.8% of total employment in the new establishments in Fife in 1967 compared with 8.2%, 6.2%, 0.3% and 0.5% in those serving the Scottish, North England, European and North American markets respectively (Table 7.31).⁹¹

The above emphasis on the Southeast Quadrant market for the new establishments in Fife was relevant to every industry group, especially to electronics (Tables 7.30 and 7.31). In stated main markets, the Midlands-London and South-East England area was dominant in every sector of new industry except other industries in manufacturing and was particularly critical for the electrical sector where it constituted the principal market for 85.7% of the establishments in the group (Table 7.30). This emphasis was even more emphatic in terms of employment, with the electrical sector being again notably outstanding in this context (Table 7.31).

For several reasons this focus on the market in the Southeast Quadrant was expected. Firstly, this market was the largest in the United Kingdom, particularly for engineering and electronics products. Secondly, the new establishments in Fife, and notably the larger employers, were branch factories and/or

branch relocations with parent companies in North America or in South-East England. Those of North American origin located in Fife partly to serve the United Kingdom market,⁹² a market centred in the Southeast Quadrant. In addition, most of the new establishments spawned from England (and certainly the larger employers in this group) originated from the south-east of the country where they were prevented from expanding in situ by shortages of labour and space, and most still retained their markets in that area. Thirdly, most products manufactured by the new establishments in Fife were able to withstand the costs of distribution to the Southeast Quadrant market. This was especially valid in the larger engineering concerns, where the value of the products were high, and in the electronics sector with high value/low bulk production,⁹³ but less so in textiles-clothing and in other industries in manufacturing, in which, however, the higher costs of distribution from a Fife location relative to one nearer the main market were more than offset by efficient organization of transport and particularly by lower costs of labour and overheads.⁹⁴

Accessibility to materials as an influence in location in Fife was much less effective than access to market, only 17.3% of the new establishments interviewed considering it a factor in their decision, 3.4% as a major influence (p. 7.38). These establishments concerned about access to materials were mainly in engineering and, to a lesser degree, in textiles-clothing and in other industries in manufacturing.⁹⁵ This lower degree of emphasis on materials was expected. Materials were purchased mostly at delivered prices compared with the costs of distribution which were generally borne by the manufacturer; they were drawn from a range of suppliers thus reducing the reliance on any single material input; and most processes

in Fife added bulk and value, thus increasing the freight rates for outgoing, relative to incoming, materials.

The analysis of the sources of raw materials for Fife industry was complicated by the use of several raw materials by each establishment. However, Table 7.32 shows that new industry in Fife depended for its main raw materials on England, especially on the Southeast Quadrant, a dependence which was notably strong in the engineering and electrical industries. Scotland as a source of raw materials also appeared significant but, with the exception of engineering in which steel and heavy castings were important, most of the establishments relying on Scottish sources were small-scale enterprises;⁹⁶ this small-scale production was also relevant to the engineering sector to a degree and inflated the importance of the Scottish area in this index.⁹⁷

The reliance of new industry in Fife on the Midlands and South-East of England for raw materials and more so for market indicated that the county was a geographically-marginal location for new industrial development. Obviously the need to transport freight into and out of the county raised the costs of production in the area, notably as a result of higher costs of distribution from Fife relative to a location nearer market. However, industrialists in the county, while verifying that the marginal location of Fife did raise the costs of distribution to market, maintained that it did so only marginally, and that these additional costs were offset by savings in the other factors of production, notably in lower costs of labour and overheads.⁹⁸ In terms of industry-type, transport costs to market were more problematical in textiles-clothing and in other industries in manufacturing, in both of which the bulk/value ratios rendered them less able to withstand the costs

of transfer than industries in the engineering and electrical sectors.⁹⁹ However, in each sector the costs of transfer were reduced by the efficient organization of the media involved, organization which included the use of "return cargoes", of local hauliers who were described as "highly efficient, competitive and guaranteeing assured and timely delivery", and of vehicles owned by the establishments concerned (p. 5.89).

The Fife survey indicated that the new establishments were using all the available transport media, but with a decided emphasis on road transport which gave greater flexibility and more assured and timely delivery than rail.¹⁰⁰ Parcel post was used by some electronics establishments, to a lesser degree in clothing manufacturing and by one firm in precision engineering; air freight was also used, mainly by the electronics industry to ship low bulk/high value products which could withstand the costs but also by one clothing firm producing high quality garments mainly for the North American market. Overall, however, road transport was by far the most intensively used medium and will become more significant in the future as improvements in the linkages with the south bring Fife more into the national pattern of industrial activity. These improvements were critical in rendering the county more accessible and in permitting the assets of available labour and space to be utilized by incoming industry. The fact that the new establishments in Fife considered the area accessible reflected their acceptance of the available means of freight movement and media as sufficiently efficient to allow them to operate successfully away from their sources of raw materials and/or markets.

The evaluation of the role of geographical situation in the location of new industries in Fife also demanded an assessment

of its effects on personal communications. The "Toothill Report" stressed the significance of personal communications as a factor in industrial location, a conclusion substantiated in this study.

"Personal communications are of paramount importance to modern industry. If the disadvantages of distance are to be overcome good passenger services and particularly nowadays air services are essential. This is especially so for the opening up of continental markets and the importance of developing export trade."¹⁰¹

The new establishments in Fife were not yet heavily involved in export trade¹⁰² (p. 7.39), but they verified the significance of good personal communications with the south as a crucial factor in their decisions to locate in the county. The accessibility of Fife for personal communications ranked third, both in terms of frequency and as a major factor, in attracting new establishments into the county, 44.8% of the concerns interviewed citing this element as influential in their location decision with 20.7% considering it of major importance (Table 7.20).

The influence of personal communications in industrial location in Fife was effective in every sector of new industry but was particularly so in electronics, 92.9% in this industry group acknowledging its influence with 50.0% holding it to be a major factor (Table 7.33). This emphasis in electronics was not surprising since many factories in this industry were branches of English-based concerns "forced" to seek new space to satisfy rising market demand and prevented from expanding in situ by shortages of labour and spatial congestion. The electronics industry requires a high degree of customer contact, implying the necessity for good personal communications between Fife and the Southeast Quadrant, which is the principal market and supply area for electronics in the United Kingdom (Tables 7.30 and 7.32).

In this context of personal communications at the management

level, the completion of the Forth Road Bridge in 1964 linking Fife with Edinburgh Airport proved vital, breaking down the insularity and relative isolation of the county and ushering the area into the "national mesh of road transportation" (p. 6.42), but of even greater significance in terms of location of new industry in Fife, the Forth Road Bridge removed the reservations of some firms concerning the advantages of a location in the area. Many indicated that they would not have located in Fife had not the Forth Road Bridge existed to facilitate mobility, particularly personal mobility at the management level.

"We would not have located in Fife without the (Forth) Road Bridge but would have gone to Livingston. The 'Bridge' is a major asset which has opened up this area."¹⁰³

This viewpoint was reiterated by many new establishments in Fife, but the most zealous endorsement of the value of the Forth Road Bridge to industrial development in the county was given by Associated Electrical Industries Ltd.

"It is most unlikely that we would have come here (Fife) ten or fifteen years ago. The area was too remote. Certainly, without the Forth Road Bridge we would not have considered Fife as a possible location for our new factories. With the 'Bridge' it is now easier and quicker to communicate personally from Kirkcaldy to London than from another branch plant at West Hartlepool to London. The 'Bridge' by bringing Turnhouse (Edinburgh) airport closer makes it possible for management to complete a round trip to or from London in a day."¹⁰⁴

Without doubt, the advantages of a location in Fife from the viewpoint of personal mobility for management had already been proven by 1967 and would become even more obvious and beneficial as the scale of new industry expanded and as the establishments built up their export markets in Europe.

Local Factors in Location of New Industry in Fife: 1958 - mid 1967.

The fourth group of influences affecting the location of new establishments in Fife was that classified as local factors (p. 7.23). They pertained solely to Fife and covered a wide range of phenomena such as the provision of housing, the impact of the area's local authorities, the "pull" of the physical environment and the general educational and cultural background of the local area (Table 7.20). In terms of frequency, the provision of housing and the impact of the local authorities were the most significant, the others being relatively unimportant in the overall pattern.

The provision of housing in Fife was cited by 24.9% of the establishments interviewed as a factor in their decisions to locate in the county, but only 5.2% considered it as major in significance. As expected, the provision of housing in this context was most important to the electrical sector, which was not only the largest employer in the new industries but also had been "grafted on" to the industrial structure and relied heavily on bringing in key personnel, both management and staff, particularly in the earlier stages of the 1958-67 period. Housing as a factor influencing location in Fife was closely linked with labour and facilitated the mobility of the work force both within the county and from outside the county limits. In the latter context it was particularly effective in attracting the key personnel referred to above as well as other less-skilled labour (p. 6.21). Glenrothes New Town, by keeping housing completions in step with, or ahead of, incoming population and industry and by providing a wide range of available housing at scaled rentals was the principal centre for the new industries influenced by housing in their location decision. Other centres in the county were less favourable in this respect but most

provided rented housing for key personnel of incoming industry (p. 6.22).

The local authorities in Fife influenced 24.1% of the new establishments interviewed to locate in the county, 3.4% considering this as major in importance, the effect being greatest on the electronics sector.¹⁰⁵ This influence stemmed from a variety of reasons. Some of the new establishments were particularly pleased with the provision of housing and of premises and sites; some were helped by the ability of the local authorities to speed up the installation of such necessary utilities as telephones and "Telex"; some were impressed by the quick reaction and follow up of inquiries concerning industrial location prospects in the area; some were made aware of a Fife location by advertising publicity; and others were aided by loans provided by certain local authorities in financing the construction of their premises.¹⁰⁶ Each and all of these reasons indicated a degree of progress and momentum of the various local authorities in the county, an indication of the awareness of the need for new industries and of a practical application of the means at their disposal to attract these industries.

All the other "local factors" were minor in significance, pertaining more to individual preferences than to influences having a direct effect on the location-decision process. The amenity of the physical environment, notably the pleasant scenery of the rural and coastal areas of most of Fife, the ample supply of golf courses and areas for walking, the close proximity to winter skiing in the Highlands and the clean, fresh air in areas away from the industrial arc, was mentioned by 12.1% of the establishments interviewed. Most of the new firms acknowledged the soundness of education in Fife, but with reference to their children's education, 5.2% specifically

mentioned this as a minor influence in location. Finally, 6.9% specifically noted the proximity to Edinburgh as a shopping and cultural centre as an asset in location in Fife.

Other Miscellaneous Factors in Location of New Industry in Fife:
1958 - mid 1967.

With the exception of one establishment in electronics and one in engineering,¹⁰⁷ this group of factors was minor in influencing the location of new industries in Fife. It affected 13.8% of the establishments interviewed, 5.2% citing aid from agencies outwith the county, notably the Scottish Council (Development and Industry), 6.9% personal contacts with Fife and 1.7% a site similar to that of the parent company in England, as factors influencing their decisions¹⁰⁸ (Table 7.20). Along with "local factors" the degree of impact of this group in location was more in the nature of influences which "tipped the balance" in favour of Fife relative to another area providing equal major attractions for the industry concerned.

Conclusions on Factors in the Location of New Industry in Fife:
1958 - mid 1967.

The location of new industries in Fife between 1958 and mid-1967 was the end result of a location-decision process involving the consideration of factors and forces operating both outside and within the county limits. Only in the later stages of this process were the assets of a Fife location considered by most of the establishments concerned.

The survey of new establishments in Fife indicated clearly that business expansion and a general economic climate of growth were essential prerequisites for the location of new

industrial capacity in the county. This business expansion initiated a demand for space which was directed towards the assisted areas in the United Kingdom, both as a result of advantages to be gained by a location in these areas and also due to the restrictions imposed on location in non-assisted areas. In terms of advantages in an assisted area location, new establishments were drawn by the need and desire to locate at market and by the availability of labour and space, the lack of which deterred some firms from expanding at existing locations. The restrictions imposed on location in a non-assisted area, notably in the Southeast Quadrant, by the shortages of labour and space which influenced some concerns to voluntarily reject these areas and by the failure to obtain the necessary industrial development certificate, were vital elements in "steering" new establishments to assisted area locations. Only at this stage of the process were the advantages of Fife relative to other assisted areas considered by the establishments concerned.

The apparent success of Fife in attracting new industries between 1958 and mid-1967 showed clearly that the county possessed assets in this context. The "milieu" of the area was obviously conducive to the establishment of new industries. The availability of "trainable" labour in the county proved the principal attraction for incoming industry, noting that some establishments were drawn by the opportunity of developing suitable labour-management relations in a new area and that by the end of the 1958-mid 1967 period the attraction of "trained" labour had become a "pull" for a few firms. In addition, by 1967, labour in Fife had proved itself to be a suitable work-force, this in terms of attitude and of aptitude to absorb training in the new industries, of turnover, absenteeism and labour relations, and of productivity. This suitability

strengthened the attraction of the county for the location of additional new establishments.

The other principal asset in the location of new establishments in Fife was the provision of premises and sites for industrial development. In this, the availability of a range of sites of various sizes, strategically located to use the existing routes to the south, proved invaluable. In addition, the provision of premises, old and new, advance and purpose-built, for sale or for rent, in industrial estates or on individual sites, all depending on the various needs of incoming industries, was a most effective tool in drawing new establishments to the area. The existing measures to facilitate the provision of premises and sites were being utilized to a high degree by the various local authorities in the county. Moreover, these same authorities showed courage and foresight by developing this "vehicle" in the attraction of new industry, even in the earlier stages of the 1958-mid 1967 period when the demand for premises and sites in the area was low and when occupancy in the foreseeable future was far from guaranteed.¹⁰⁹

With the possible exceptions of the provision of housing as a factor attracting key labour and management into the area and the role of the local authorities, the other assets of Fife in drawing new industries were minor in significance relative to the availability of labour and premises and sites. Classed under "Local Factors" and "Other Miscellaneous Factors", the various elements in these categories did on occasion "tip the balance" towards Fife for certain firms and as such played a part in the build up of new industries in the county. Without doubt, in these groups of factors influencing the location of new establishments in Fife, the role of housing in facilitating the mobility of labour

and the impact of the local authorities, notably Fife County Council, Glenrothes Development Corporation and Kirkcaldy Burgh Council, in publicizing the attractions of the area for industry, in aiding new industries establish themselves and in other ways referred to in another section of this chapter (p. 7.46), were the most significant.

However, the effectiveness of available labour and premises and sites, local and other miscellaneous factors in attracting new industrial establishments to Fife would have been nullified had not the area possessed the decided advantage of a situation accessible to raw materials and to market and to facilitate personal mobility at the management level. The survey of new industries in Fife showed that accessibility to market was much more significant than access to raw materials, but in both instances production in the county was dependent of the Southeast Quadrant. This dependence increased the costs of transfer of goods, particularly those of distribution to market which were generally borne by the manufacturer, but these were offset in the Fife location by the efficient organization of transport and by lower costs of labour and overheads. Obviously, operation in a marginal location was not overburdening the Fife producer in the new establishments and was not unduly affecting the attraction of new industries. Every transfer media was used in the transport of freight but road, giving assured and timely delivery and flexibility, was emphasized. However, the significance of the Fife situation in the location of new industries was most effective in facilitating the movements of management personnel. In this, the completion of the Forth Road Bridge linking South Fife with Edinburgh Airport was the critical factor favouring industrial location and development

in the county. Fife was no longer "isolated" from the mainstream of industrial development in which personal contact with customers was a vital consideration. In this context of personal mobility, the decided advantages of this asset would increase as the new industries in Fife expanded.

Thus, Fife possessed significant advantages for attracting new establishments. Some, such as labour and physical amenity were integral parts of the area's geographical "milieu" while others, such as the provision of premises and sites, the completion of improved linkages to markets and raw materials, and the availability of housing, were induced by human action. The necessary catalyst to stimulate development in the area was business expansion creating the demand for space which, for the new establishments in the county, was satisfied by a location in Fife.

Government Policy in Location of New Industry in Fife: 1958-mid 1967.

Throughout this chapter on the location of industry in Fife, and indeed throughout this entire thesis, reference has been made to the involvement of government in fostering growth and development in the peripheral regions of the United Kingdom. However, in the present context of factors influencing the establishment of new industries in Fife, the role of the central government has not received its due recognition, a shortcoming which must be rectified. In this writer's opinion, the location of new establishments in Fife would have been drastically curtailed but for the involvement of the central government. This involvement covered a wide range of phenomena, operating directly in some and less directly in others to channel new industrial development into the assisted areas and thus foster economic growth in these areas.

Government participation of a high order was essential to generate development and growth in Central Scotland. It was necessary to create a climate conducive to expansion in order to attract new industries and, in this context, the assistance provided by the central government in financing improvements in the physical landscape, in the modernization of the regional infrastructure, in the training and retraining of labour, and more directly in the provision of premises and serviced sites and of loans and grants to industrialists, can never be over-emphasized. This positive commitment of government, together with the policy of restricting development in the Southeast Quadrant, favoured the assisted areas as locations for new industrial capacity. Government was thus instrumental in strengthening the spread effects of polarization and in directing this spread towards the peripheral regions.

This role of government was evident in the Fife case study. Most of the new establishments in Fife eventually favoured an assisted area location, the remainder being "forced" to locate in these areas by failing to obtain the necessary industrial development certificate to locate or expand in non-assisted areas (p. 7.19). For some establishments the preference for an assisted area location was conditioned by the availability of the positive financial incentives provided by the government, but it must be stressed that of the others citing other factors influencing their location decision, once the decision to obtain new or additional space had been taken, many chose a site in an assisted area to gain these same incentives. Thus, government industrial location policy affected location in Fife both directly and indirectly.

In addition to the above role, the central government

effectively conditioned the geographical pattern of industrial location in Fife by exerting control over the area designated as a development district. Since this thesis is intimately concerned with the evaluation of Central Fife as a geographical growth-pole, this control over the distribution of the new establishments entering the county was central to the entire study. Kirkcaldy-Glenrothes had emerged as the geographical growth-pole in Fife by mid-1967 in terms of the number of new establishments introduced (p. 7.08; Map 7.02), in employment provided (p. 7.09; Map 7.02), and in space constructed in advance and approved (p.7.35; Map 7.06). A secondary geographical growth-point identified by the same indices was also emerging at the bridgehead of the Forth Road Bridge in the Dunfermline-Hillend-Donibristle area (p. 7.08, Map 7.02; p. 7.09, Map 7.02; p.7.35, Map 7.06). Further, in this context, expansion in the Kirkcaldy-Glenrothes area accelerated markedly from 1963 when it was designated a development district, thus implying that government was, at least in part, responsible for the attractiveness of this area for new industrial establishments.¹¹⁰ The area obviously possessed the "milieu" for expansion but it required central government to provide development district status to initiate the rapid growth experienced from 1963.

Finally, and relevant to the conclusions on the establishment of new industries in Fife from 1958, the control of industrial location in the United Kingdom by the government was effected by the need for an industrial development certificate to construct new industrial space. As such, the applications for these certificates provided significant indices of development and growth in any region, indices which were invaluable in assessing Central Fife as a growth area. The available data from this source covered the number of

projects approved, the area of factory space involved and the estimated additional employment generated by the projects approved, and were sufficiently comprehensive to be used as indices of growth and development in Fife, both in absolute terms and also relative to Scotland and to Great Britain.

Industrial development certificate data revealed several features significant in assessing Central Fife as a growth area.¹¹¹ In absolute terms, the information showed clearly the degree of industrial expansion in Fife from 1960-61 (Table 7.34). Between 1960-61 and 1966-67 approval was obtained for 103 projects in Fife covering a total area of 4.4 million square feet and providing an estimated additional 18,193 jobs of which 9,723 (53.4%) would be male. The average area per project was approximately 43,000 square feet indicating that some were sizable in area. The average estimated employment per project (176) and the number of employees per 1000 square feet of area (4.1) indicated that the projects approved were labour intensive (Table 7.34).

Secondly, the data indicated a decided acceleration of growth from 1964-65. The 1964-65 to 1966-67 period accounted for 58.3% of the projects approved from 1960-61, 77.5% of the area and 83.9% of the estimated additional employment. Since the average area per project, estimated employment per project and the employment per square foot all increased in this period (Table 7.34), the projects had obviously become larger and more labour intensive in time. Several factors were significant in these trends. From 1964 Fife was benefitting from the use of the measures contained in the Local Employment Act (1963) and in the Central Scotland Programme for Development and Growth (1963), measures which expanded development district status to larger areas of the county (including

the Kirkcaldy-Glenrothes area which proved attractive to industry) and which increased and clarified the available financial aid to industrialists locating in the development districts; the completion of the Forth Road Bridge (1964) rendered Fife more accessible to "raw materials" and to markets and greatly facilitated the personal mobility at the management level essential to new industries; industrialists were becoming increasingly aware of the potential of a Fife location as a result of the progressive outlook of the local authorities in the county and of the apparent success of firms which had located there in the early stages of the 1958-mid 1967 period; and the government was applying the controls in their power to promote industrial location in the peripheral regions. All of these factors were applicable in explaining the accelerated growth in industrial development in Fife from 1964-65.

Thirdly, throughout the entire period and particularly from 1964-65, Fife was attracting labour-intensive industries (Table 7.34) in keeping with government policy to steer employment into areas of high unemployment. This satisfied the short-term aim of the introduction of new establishments but, with the location of several large-employing concerns in the engineering and more so in the electronics growth sectors, it is this writer's opinion that the longer-term aim to establish an economic growth-pole in the area was also being served by the location of these labour intensive industries. This dual capacity of incoming industry to satisfy both the short- and the long-term needs of the county represented a strength to the area.

Fourthly, the projects approved in Fife emphasized the provision of employment in the female sector to 1965-66: only in 1966-67 did this male-female balance alter to give male employment

the edge over the entire period (Table 7.34). The awareness of the decline in absolute male employment, the reduced activity rates in this sector by 1966, and the significance of employment for males as a stabilizing influence in population movements from the county, stressed the need to attract male-employing industries. The statistics for 1966-67 suggested that the awareness of this need¹¹² was being translated into definite action to improve this situation.

Any assessment of the growth area concept as applied to regional inequalities in development also demands a relative evaluation of the indices showing these inequalities, and since the growth of new industry in Fife was intimately linked and indeed dependent on the situation and events in the national economy, an analysis of the above growth indices in Fife relative to Scotland and Great Britain was meaningful and valuable in the evaluation of Central Fife as a growth area.

The analysis of the statistics on the area and estimated additional employment in approved projects in Great Britain showed the expansion trends in the national economy from 1962-63 (Table 7.35). These statistics also showed that from 1961-62 an increasing percentage of the total additional space and employment in Great Britain was being channeled into the assisted areas.

Compared with Great Britain, Scotland was obviously more dependent on aid from the central government with high and increasing percentages of both area and employment being steered into the designated development districts (Table 7.36),¹¹³ but more important in the context of this thesis, the data showed that Scotland's share both of the total area and of the estimated additional employment from industrial development certificate

approvals in Great Britain was consistently higher than her share of the insured population in manufacturing, especially in employment and particularly in the later stages of the period under review. Obviously Scotland represented a growth area relative to the national norm in the provision of space and estimated additional employment.

The analysis of the above indices comparing Fife with Scotland favoured the Fife area. By 1966-67 the county had become a major growth area in the Scottish context (Table 7.37). With the exception of 1960-61, when parts of the county were first designated as development districts, Fife's share of the approved allocations of space and estimated additional employment in projects requiring an industrial development certificate was consistently in excess of her share of Scotland's total insured population in manufacturing. This was particularly true of the later stages of the period and especially in terms of the estimated additional employment from the approved projects. In 1966-67, Fife, with only 4.5% of the total insured in manufacturing attracted 18.2% of the total area and 34.9% of the estimated additional employment from projects approved in Scotland (Table 7.37).

Thus Fife was developing as a major growth area in terms of space and estimated additional employment in projects given industrial development certificate approval. This was applicable both in absolute terms and also relative to both Scotland and Great Britain. Fife had obviously become attractive as a location for new industrial capacity. In this, the area possessed advantages and assets to be developed but it is doubtful if these would have been utilized to the extent experienced had not the climate for growth existed at the national level, had not shortages of labour

and of space in the Southeast Quadrant deterred expansion in that area, and had not government policies, both negative and positive, steered the new capacity towards the assisted areas. Without these forces operating both outside and within the Fife boundaries, the county would not have attracted the new establishments to satisfy its short- and long-term needs in industrial development.

REFERENCES AND FOOTNOTES

¹Footnote. The indices used in this analysis were the number and type of industries introduced into Fife, their size by employment and space occupied, the source of origin as it affected both location and operation of the new establishment, the status of each as a branch establishment or a branch relocation or a complete relocation or a new enterprise, the factors involved at all stages in the location-decision process and finally the degree of growth and development initiated by the new establishments.

²Footnote. Information from Fife County Council Planning Department included a list of all new establishments in Fife from 1945 to 1965; this was supplemented by similar data for 1966 and 1967 from H. M. Inspectorate Records enabling a comprehensive list of every establishment located in the county from 1945 to mid-1967. This information showed that 87 establishments were located in Fife from 1945 and of these 69 were interviewed personally, two of the eight which were introduced between 1945 and 1957 and the remaining 67 from the 79 introduced in the 1958-mid 1967 period. Fifty-eight of the 67 firms interviewed from the second phase of location were in manufacturing.

³Footnote. Government measures in industrial location were both negative and positive. The former refers to the need for an industrial development certificate to construct new premises and was used to restrict expansion in the non-assisted areas of the United Kingdom. The positive measures provided financial incentives for industrialists locating establishments in the designated development districts.

⁴Footnote. The division between the phases at 1957-58 was chosen since the first "new-type" establishments were located in 1958 at Glenrothes. This represented the start of the "modern" period of industrial location in the county.

⁵Fife County Council Planning Department, Cupar.

⁶Footnote. Establishments in this category located in Dunfermline (1), Cowdenbeath (1) and Buckhaven (2). The establishment at Dunfermline was a major textile manufacturer in Fife producing synthetic cording for tyres and was influenced in location by an available factory and labour; the others were small concerns.

⁷Footnote. This establishment located at Kirkcaldy and was one of four branches located in Scotland to serve the Scottish market; the others were located at Dundee, Falkirk and Glasgow. (Interview: Water Heating Systems Ltd., Kirkcaldy, 1967).

⁸Footnote. Note that for the food industry in this category the market was wider than Fife which was the main sales area of the firm manufacturing concrete blocks.

⁹Interviews: Dunlop Textiles Ltd., Dunfermline, 1967: Water Heating Systems Ltd., Kirkcaldy, 1967.

Fife County Council Planning Department, Cupar.

¹⁰Footnote. Most of the employees in the Dunfermline area were employed by the textile firm referred to in reference 6. (Fife County Council Planning Department, Cupar).

¹¹Footnote. This was only to be expected since most of the new establishments which located in Fife in this period sought production space to satisfy business expansion to meet rising demand. (See p. 7.16).

¹²Footnote. Of the remaining new establishments introduced into Fife in this period, most were in a wide variety of manufacturing industries such as the manufacturing of toys (4 establishments), of wood products (2), of sports equipment (2), of food products (2), of car accessories (2), of paper and printing (2), of parts for the building industry (2), of tyres (1), of safety pillows (1), and of mineral boring equipment (1). The remainder were service and distributive industries, including a distributor of pharmaceutical products, a plant hiring company and several service industries such as painters and decorators, carpenters, plumbers and electricians, most of whom located in the Woodside Industrial Estate at Glenrothes.

¹³Footnote. The approximate limits of the designated growth area were the Ministry of Labour Exchange Areas of Inverkeithing, Burntisland, Cowdenbeath, Kirkcaldy and Glenrothes. Note that the growth node referred to was actually located in the Hillend and Donibristle Industrial Estates just outside Inverkeithing Burgh.

¹⁴Footnote. Employment is only one index used in measuring growth trends; others include factory area, production, value added in manufacturing. (see Chapter 111).

¹⁵Footnote. In this it must be noted that several new firms which would become large employers had located in the Hillend-Donibristle area in late 1966 and early 1967 but were either only in the initial stages of production or in the process of recruiting labour. The ultimate employment from these establishments would increase the status of this area as a centre of growth.

¹⁶Footnote. The area occupied by the new establishments in Fife in 1967 was approximately 2 million square feet. (see Table 7.08).

¹⁷Interviews of New Establishments; Fife; 1967.

¹⁸Footnote. Note that local (Fife) establishments were significant numerically but all were small-scale enterprises employing an estimated 59 in 1967; in addition, seven were in the non-manufacturing sector. Most were completely new establishments with two relocations of capacity within the county. (Tables 7.04, 7.05, 7.06). (Interviews of New Establishments; Fife; 1967).

¹⁹Footnote. These branch establishments and branch relocations included large employing concerns such as Associated Electrical Industries Ltd. and Elliott Automation Ltd. The contribution of these establishments to development in Fife was critical both in terms of providing employment and in laying a basis for self-sustaining future growth.

²⁰Footnote. The North American establishments in textiles-clothing manufactured infants' wear while of those in other industries in manufacturing one produced car accessories and another pre-fabricated buildings.

²¹Footnote. Establishments in this category included Bourns-Trimpot, Varian Ltd. and Ocli Opticals Ltd., at Hillend-Donibristle, W. L. Gore Ltd., at Dunfermline, Andrews Corporation at Cowdenbeath. (Interviews of New Establishments; Fife; 1967).

²²Footnote. This concern, Stowe-Woodward - B.T.R. Ltd., relocated in Glenrothes adjacent to Sandusky Ltd., which represented a main market. This was an example of vertical linkage. (Interview: Stowe-Woodward - B.T.R. Ltd.; Glenrothes; 1967).

²³Footnote. This estimated employment in the textiles-clothing sector included 400 employed by Lyle and Scott Ltd., at Dunfermline. (Interviews of New Textile-Clothing Establishments; Fife; 1967).

²⁴Footnote. This estimated employment in engineering included 350 in Anderson-Boyes Ltd., at Glenrothes. Note, however, that the engineering establishments of Scottish origins were based on traditional engineering production and were not growth type industries.

²⁵Footnote. Four of these establishments were in engineering but all were small; two located in Glenrothes and two at Donibristle. The concern in the electrical sector was in electrical wiring at Glenrothes, while of those in other industries in manufacturing (2), one was a printing concern relocated from Burntisland to Glenrothes and the other a new toy manufacturer at Donibristle. (Interviews of New Establishments; Fife; 1967). (See also ref. 18).

²⁶Footnote. The engineering concern relocated its factory at Donibristle-Hillend from Dunfermline where spatial congestion was affecting efficient operation; the firm in other industries in manufacturing was the printing concern referred to in ref. 25 above. (Interviews of New Establishments; Fife; 1967).

²⁷Scottish Council (Development and Industry), (1962), op. cit., para. 02.28.
Scottish Development Department, (1963), op. cit., para. 45.

²⁸Footnote. Fife depended on the inflow of new establishments especially from England for its development and in this the improvements in transport and communications rendering the county more accessible in the United Kingdom setting were critical to growth in the area.

²⁹Footnote. This viewpoint implies that the United Kingdom represents a single economic region. In addition, it recognizes the dynamism inherent in polarization by suggesting that in time Fife might develop into a major growth-pole in electronics. See also Boudeville, J.R., (1966), op. cit., p. 30.

³⁰Footnote. See e.g. Cameron, D.C. and Reid G.L., (1966), op. cit., pp.35-48.

³¹Footnote. This again considers Great Britain as a single economic region drawn together by an improving transport network. (see ref. 29).

³²Footnote. This writer accepts that this survey tends to be biased since it was possible to interview only those establishments which actually located in the county thus giving a more favourable impression of the advantages of a Fife location. This was unavoidable since a comprehensive list of concerns which had considered and rejected a location in the county was not available. Note that other authors are faced with a similar problem. e.g. see Cameron, D.C. and Reid, G.L., (1966), op. cit., p.2.; their survey was based on information supplied by concerns which had rejected a Scottish location.

³³Footnote. Firms seeking a location specifically to serve a market in Fife were exceptions to this general statement.

³⁴Footnote. This conclusion confirms the viewpoint that the potential for growth in the peripheral regions is highest in periods of economic expansion at the national level. In such periods the "spread" effects are strongest.

³⁵Footnote. This motivation by business expansion in the electrical goods sector was as expected. This group of industries represented a major growth sector in industry in the United Kingdom. (see Chapter V).

³⁶Footnote. Of the establishments motivated in the search for additional space by rising demand for their products, 74.0% manufactured products similar to those in the parent plant compared with 22.0% manufacturing different products: and this percentage of establishments manufacturing different products was inflated by entirely new concerns. (Interviews of New Establishments; Fife; 1967).

³⁷Footnote. North American establishments were mainly interested in exploiting the dual market of the United Kingdom and Europe. The remainder located to serve the United Kingdom alone. In each case location was influenced by the removal of tariff barriers to make the firms more competitive in the market. For those who considered a European location the choice of the United Kingdom was the result of language similarity and/or the fact that the U.K. constituted the largest potential market and/or the general industrial climate in the United Kingdom was considered more conducive to growth than in several other parts of the continent. (Interviews of New Establishments; Fife; 1967).

³⁸Footnote. To firms of local origin the search for space near market was more a consideration of site than situation; most were small concerns located to serve larger industries which had located in the area. (Interviews of New Establishments; Fife; 1967).

³⁹Footnote. Other relevant considerations at this stage of the location decision process were the shortage of space with other factors and other miscellaneous factors. The former consisted of an Edinburgh company in constructional engineering who sought additional space for more efficient production but whose final decision to relocate was "pushed" by the closure of a branch rail line on which they depended for transport. The latter comprised three firms, a Scots food industry which sought a location at raw materials to reduce costs in processing involving a large reduction in bulk, and two English concerns, one in clothing which took over the premises and labour force of a competitor at Glenrothes, the other in other manufacturing industries which sought new and smaller, more efficient premises in a company rationalization of production. (Interviews of New Establishments; Fife, 1967).

⁴⁰Footnote. The desire for a location at market affected seven establishments (four English, two Scots and one local), five of which located in Fife to serve the local market area and the remainder to serve the Scottish Market.

One establishment located in Fife near raw materials. This was a Scottish food industry using milk in a weight reducing process which made a location at the source of materials the most economic.

Most of the establishments experiencing problems at their existing location were English from the Southeast Quadrant and were affected mainly by shortages of labour and of labour in combination with spatial congestion. With the exception of some textile and clothing firms with labour problems in situ, the Scots-based concerns in this category were affected mainly by lack of space for expansion in situ. (Interviews of New Establishments; Fife; 1967).

⁴¹Footnote. Labour problems in situ affected the expansion plans of eight English-based concerns, six of which were in electronics and one each in engineering and clothing; all were based in the London area.

Problems of labour and space in situ affected five English-based concerns (two in engineering, two in toy manufacturing and one in clothing) all based in the Southeast Quadrant. (Interviews of New Establishments; Fife; 1967).

⁴²Footnote. Of the fourteen English concerns affected by problems in situ eleven were from London itself and one each from the Midlands, Kent and East Anglia. (Interviews of New Establishments; Fife; 1967).

⁴³Footnote. Four Scottish firms were prevented from expansion in situ by spatial congestion at their existing locations. Three were in engineering, two from North Lanarkshire and one from Perth; the fourth was a clothing establishment from Edinburgh which lost its premises in urban redevelopment.

Shortages of labour limited another two Scottish concerns from expanding in situ. Both were clothing manufacturers, one from the Borders where labour shortages was the result of competition from other textile-clothing establishments, and the other from Edinburgh where competition from alternative employment was the limiting factor in this context.

Of the remaining Scottish firms prevented from expanding in situ, two in textiles-clothing in Dundee and were adversely affected by shortages of labour and by spatial congestion at their existing locations: the other (from Edinburgh) was limited by spatial congestion but the final decision to relocate was made when a branch rail line on which they depended was closed. (see also ref. 39). (Interviews of New Establishments; Fife; 1967).

⁴⁴Footnote. In connection with these localized shortages of labour for textiles-clothing industries in the Borders and in Dundee it should be noted that the firms concerned still operated in their original locations and established branches in Fife; they did not wish to reduce the labour supply in the parent company locations by introducing new capacity there. (Interviews of New Establishments; Fife; 1967).

⁴⁵Footnote. All three were London based, one in electrical goods, the others in the manufacture of toys. The firm in electrical goods preferred a location in East Anglia and the other two wished to locate in proximity to the Great Cambridge Road north of London. (Interviews of New Establishments; Fife; 1967).

⁴⁶Footnote. Establishments located in Fife to serve the Fife market were not unduly concerned with this choice between an assisted and a non-assisted area.

⁴⁷Footnote. Engineering and electronics establishments each accounted for 41.2% of the firms which considered a non-assisted area location. North American concerns represented 76.5% of the firms considering such locations, the remainder being English.

⁴⁸Footnote. These statistics indicate the significance of available labour and of government as factors in industrial location in the United Kingdom. Again, the non-assisted areas considered by the establishments were in the Southeast Quadrant where labour was at a premium and where government was committed to control expansion.

⁴⁹Footnote. These statistics on the preference for an assisted area location were inflated, firstly by the completely new establishments of local origins which came into existence to serve the local market and secondly by the fact that a market location could have been outwith an assisted area. However, in this latter category the attraction of government incentives "pulled" these firms to an assisted area. Similarly, the available financial inducements in the assisted areas were significant for firms emphasizing space and/or labour as factors in their choice of an assisted area location. (Interviews of New Establishments; Fife; 1967).

⁵⁰Footnote. The motivations for the preference of a market location varied. Seven establishments sought a location near their principal customers. One was the result of vertical linkage with location dictated by the linked industry which was the principal market. A second establishment manufactured standardized metal windows for local authorities and located at the centre of its main market to reduce the transfer costs of the assembled product; the assembly process increased the bulk and made market location important for the company which was a branch factory of an English concern. Of the remaining five establishments in this group, four were in engineering and one in electronics; all located at market to exploit the growing demands generated by the larger engineering and electrical industries which had come into the area. Four were completely new concerns and the fifth a branch of English-based firm.

A second group of establishments preferred a market location in an assisted area to develop, for them, a new market. This group consisted of six companies three of which were new, one a branch relocation of a local firm and the other two English-based concerns who established branches at market. Of the three new companies two, one Scots and one local, manufactured toys and the other made specialty goods. The branch relocation was a local printing firm which established in Glenrothes to develop the growing market in that area. The two English-based firms were in food processing and concrete reinforcements respectively. In each case location was to reduce the costs of distribution to market of low value products.

A third group of establishments located branches in Fife to extend and make more efficient their markets in the area. Two, one Scots and one English were in engineering; the former was in mining machinery and found the Fife Growth Area Coal-field an expanding market at the time of decision to expand production, the latter manufactured plant for distilling and brewing industries in which the Scottish market was expanding; in both the assembly process increased bulk and location at market reduced costs of distribution. The other two in this group were both Scots-based companies; both had sizable proportions of their markets in Fife and found it convenient to establish branches there to make their customer contact and distribution more efficient. (Interviews of New Establishments; Fife; 1967).

⁵¹Footnote. Labour as a factor in the preference of an assisted area location influenced twelve establishments, four of which were North American, seven English and the other Scots. Five of these concerns, the four from North America and one from England had considered locations in a non-assisted area but had rejected them on the grounds of shortages of labour. Consequently they sought an assisted area location where labour was more plentiful.

Labour and space influenced four establishments of which three were North American all of whom considered non-assisted areas but rejected them on the grounds of both spatial congestion and labour shortages, the fourth being an English-based branch factory which took over the premises and labour force of another company in a similar industry. (Interviews of New Establishments; Fife; 1967).

⁵²Footnote. Of the sixteen establishments in this context, eight were in electronics (four North American and four English) and five in engineering (three North American and two English); the remaining three were clothing manufacturers (two English and one Scottish). (Interviews of New Establishments; Fife; 1967).

⁵³Footnote. This high percentage of total labour was not surprising since most establishments in this category were in engineering and in electronics, both substantial employers and since several had rejected a location in a non-assisted area due to the shortage of labour in these areas. (see ref. 51).

⁵⁴Footnote. This category consisted of four establishments. However, three of these were small and available premises were important for them. One was in engineering, a local firm where efficient production was hampered by spatial congestion. The other two were in clothing manufacturing, one seeking space as a result of the loss of their original premises to redevelopment in Edinburgh and the other from England where the existing space was not suitable. All were relocations of capacity. (Interviews of New Establishments; Fife; 1967).

⁵⁵Footnote. One obvious advantage for some firms was a location to serve the Fife market.

⁵⁶Footnote. e. g. Some establishments which located in Fife rejected Northern Ireland due to its "geographical inaccessibility"; some considered that labour relations in North-East England were a deterrent to location there; some rejected Lancashire and the West of Scotland due to possible and existing competition for available labour; some refused to locate in South-West England as a result of the lack of an "industrial climate" in that area. (Interviews of New Establishments; Fife; 1967).

Note that while these criticisms may or may not be valid they were effective in the eventual location of new establishments in Fife.

⁵⁷Scottish Council (Development and Industry), (1962), op. cit., para. 03.30 (1).

Scottish Development Department, (1963), op. cit., para. 9.

⁵⁸Footnote. The need for training labour was especially relevant to the electronics industries which had no background in Fife but were superimposed on the industrial structure thus necessitating the complete training of the entire work force in these industries. Training was also essential for labour in the new engineering and clothing industries, most of which used processes differing from those in similar industries in the area's traditional industries. However, the existing general background in textiles and clothing and in engineering in the county permitted the new industries in these sectors to reduce the time period for training and retraining the labour force. (Interviews of New Establishments; Fife; 1967).

⁵⁹Footnote. This included two U.S. branch establishments in electronics who considered that trained labour could be "poached" from existing firms in the area, one clothing firm of English origin which took over the labour and premises of another concern, and two engineering branches, one English which located on the strength of the expected labour freed by the proposed closure of the N.C.B. Workshops at Cowdenbeath, and one Scots which utilized labour from the Fife shipyards in similar processes. The English firm in engineering and the clothing firm regarded this supply of trained labour as of major importance in their location decisions. (Interviews of New Establishments; Fife; 1967).

⁶⁰Footnote. The percentages of firms in textiles-clothing and engineering citing "trained" labour as a major "pull" in location represented one establishment in each sector. The engineering concern was Scots and used available trained labour from the shipyards in the area; the textiles-clothing firm took over the premises and labour of another concern. (see ref. 59). Thus local conditions were effective in these circumstances. (Interviews of New Establishments; Fife; 1967).

⁶¹Footnote. The Scottish firms in this category were from Dundee (2), Edinburgh (1) and the Borders (1). The English establishments originated in South-East England, one each from London, East Anglia and Kent. (See refs. 42, 43 and 44). Two were complete relocations of capacity (from Edinburgh and East Anglia); the others established branches in Fife. (Interviews of New Establishments; Fife; 1967).

⁶²Footnote. The Scottish firms which intended to transfer employees to new locations in Fife were both in engineering, one from Perth and the other from Edinburgh. Both relocated their entire production in Glenrothes. (Interviews of New Establishments; Fife; 1967).

⁶³Footnote. Most of these establishments originated in the Central Industrial Belt in areas designated as development districts on the criterion of surplus labour. (Interviews of New Establishments; Fife; 1967).

⁶⁴Footnote. Premises here refer to factory space in existence at the time of decision to locate new capacity. It includes advance factories built by the Board of Trade and the various Local Authorities in Fife and old premises which were reconverted e.g. naval sheds at Donibristle.

⁶⁵Footnote. Concerns using older premises in the initial stages of their operation in Fife included Associated Electrical Industries Ltd., in Kirkcaldy; Bourns Trimpot at Hillend; and Andrews Corporation in Lochgelly (Interviews of New Establishments; Fife; 1967).

⁶⁶Footnote. e.g. Beckman Instruments and Hughes International at Glenrothes, Highland Electronics at Donibristle. (Interviews of New Establishments; Fife; 1967).

⁶⁷Footnote. This was Andrews Corporation who sought a site outwith an urban area to test antennae equipment. (Interview; Andrews Corporation; Lochgelly; 1967).

⁶⁸Footnote. Firms in this category were Loudon Bros. at Glenrothes and Porter and Gordon Ltd. at Hillend-Donibristle. (Interviews: Loudon Bros., Glenrothes, 1967 and Porter and Gordon Ltd., Hillend-Donibristle, 1967).

⁶⁹Interview: Elliott Automation Ltd.; Cowdenbeath; 1967.

⁷⁰Footnote. The four concerns in this category were Cessna Industrial Products Ltd., J. B. Butchart and Sons Ltd., and Tokheim Ltd., at Glenrothes and Trane Ltd., at Donibristle. They did not require specific needs in premises but some modifications were made in the standard advance space accepted by Trane Ltd., and by Cessna Industrial Products Ltd. Note that Cessna Industrial Products Ltd. eventually had new, purpose-built premises constructed in the Eastfield Industrial Estate in Glenrothes. (Interviews: Cessna Industrial Products Ltd.; Glenrothes, 1967; J.B. Butchart and Sons Ltd.; Glenrothes, 1967; Tokheim Ltd., Glenrothes, 1967; Trane Ltd.; Donibristle, 1967).

⁷¹Interviews: A. Thomson Ltd.; Donibristle, 1967; F.G.H.S.; Donibristle, 1967; McLean and Junior Ltd.; Glenrothes, 1967; Woodside Engineering; Glenrothes, 1967.

⁷²Interviews: Lyle and Scott Ltd.; Dunfermline, 1967; Babygro' Ltd.; Kirkcaldy, 1967; Glenrothes Clothing Co. Ltd.; Glenrothes, 1967; H. Harris Ltd.; Donibristle, 1967; Senga Textiles Ltd.; Cowdenbeath, 1967.

⁷³Footnote. Most of these concerns used available "nests" of advance factories at Glenrothes and premises at the former naval repair base at Donibristle. (Interviews of New Establishments; Fife, 1967).

⁷⁴Interview: Eastwood Ltd.; Glenrothes, 1967.

⁷⁵Footnote. Glenrothes Development Corporation, Fife County Council, Kirkcaldy Burgh, Dunfermline Burgh, Cowdenbeath Burgh and Buckhaven and Methil Burgh were the local authorities engaged in the provision of premises for incoming industries.

⁷⁶Footnote. The Woodside Estate catered for "Service Industries" and was a collection of small units. The others at Queensway, Viewfield and Eastfield were larger and contained larger establishments. Queensway was the oldest, Eastfield the youngest and future expansion would take place mainly at the latter and at Viewfield.

⁷⁷Footnote. In addition, Fife County Council proposed to designate forty acres reclaimed in the Lochore Meadows scheme for industrial purposes. (see Chapter VI). Note that Bellknowes was not in operation in 1967.

⁷⁸Footnote. These three estates were recent developments in 1967, part of the diffusion of industrial sites throughout the industrial arc of Fife.

⁷⁹Footnote. Note however that the internal roads in Fife were far from satisfactory. The construction of the East Fife Regional Road and of a road linking the Forth and Tay Road Bridges were essential for efficient industrial operation in the county. (see Chapter VI).

⁸⁰Footnote. This progressive nature of the local authorities in the area was also seen in the Lochore Meadows reclamation scheme by Fife County Council. (see Chapter VI).

⁸¹Footnote. Glenrothes Development Corporation indicated the importance of advance factories to the development of industry as early as 1955-56 and showed their attraction to industry by 1961.

(Glenrothes Development Corporation, 6th. Annual Report for 1954-55 and 12th. Annual Report for 1960-61).

⁸²Footnote. Note that this area includes estimates of completed advance factory space for 1967 and 1968. (see Table 7.25).

⁸³Footnote. This included four concerns which later constructed premises (Lyle and Scott Ltd., at Rosyth, Cessna Industrial Products Ltd., at Glenrothes, Bourns Trimpot at Hillend and Andrews Corporation at Lochgelly). (Interviews of New Establishments; Fife; 1967).

⁸⁴Interviews of New Establishments; Fife; 1967.

⁸⁵Ibid.

⁸⁶Ibid.

⁸⁷Footnote. Other miscellaneous elements here referred to industrial linkage and a location near similar types of industries. (Interviews of New Establishments; Fife; 1967).

⁸⁸Footnote. Several factors were relevant in this situation; raw materials were generally drawn from a wide area thus reducing the dependence on any single one; most processes in Fife added weight and bulk and this, together with higher freight rates on finished products, increased the transfer costs to market; the costs of distribution were generally borne by the manufacturer; some firms located in Fife to serve a local market. All of these factors favoured accessibility to market over raw materials.

⁸⁹Footnote. Industrial linkage was relevant in this grouping (see refs. 22, 50 and 87): others located near similar industries hoping to "poach" labour (see refs. 59 and 87). (Interviews of New Establishments; Fife; 1967).

⁹⁰Footnote. These statistics tend to underestimate the contribution of Fife manufacturers to exports. Some produced parts and complete products which were despatched to the parent companies in the south and then exported. In addition, others, by producing for the home market, allowed the parent companies to concentrate more on exports. (Interviews of New Establishments; Fife; 1967).

⁹¹Footnote. Note that this degree of emphasis on the Southeast Quadrant market could alter. Many of the new establishments in Fife were expecting to enter the export market, particularly the North American concerns, many of which had located to serve the United Kingdom and European markets. (Interviews of New Establishments; Fife; 1967).

⁹²Footnote. See reference 91.

⁹³Footnote. e.g. "The costs of transport to market are about one-half of one percent of the total sales value of goods. This is "peanuts". (Interview of a New Establishment in Engineering; Donibristle; 1967).

⁹⁴Footnote. e.g. "The costs of distribution are higher from a Scottish location and are an important factor in competition but our experience here in Fife is that they are met by savings in other factors of production and by the organization of transport." (Interview of a Clothing Manufacturer, Kirkcaldy, 1967).

"One anticipated problem and a major concern in locating in Scotland was an expected high increase in transport costs. However, this has not materialized since, with the use of full loads and excellent service from a local road haulier, our costs of distribution are almost the same as from our previous location in London." (Interview of a Toy Manufacturer, Glenrothes, 1967).

⁹⁵Footnote. Concern with access to raw materials influenced 31.6% of the establishments interviewed in the engineering sector, 18.2% of those in textiles-clothing, and 14.3% of those in other industries in manufacturing. (Interviews of New Establishments; Fife; 1967).

⁹⁶Interviews of New Establishments; Fife; 1967.

⁹⁷Ibid.

⁹⁸Ibid. (see also refs. 93 and 94).

⁹⁹Ibid. (see also ref. 94).

¹⁰⁰Ibid.

Footnote. Note that large bulk products in engineering used rail in preference to road, but where bulk and weight permitted movement was by road.

¹⁰¹Scottish Council (Development and Industry), (1962), op. cit., para. 07.43.

¹⁰²Footnote. Note however that many of the larger new establishments in Fife were engaged indirectly in production for export and that most signified their intentions to develop export markets. (see also refs. 90 and 91). (Interviews of New Establishments; Fife; 1967).

¹⁰³Interview: Varian Ltd., Donibristle, 1967.

¹⁰⁴Interview: Associated Electrical Industries Ltd., Kirkcaldy, 1967. See also Macgregor, D.R., (1966), op. cit., p. 88.

¹⁰⁵Footnote. Half of the new establishments in the electrical sector cited help from the local authorities as an influence in their decision to locate in Fife. (Interviews of New Establishments in Electrical Goods; Fife; 1967).

¹⁰⁶Interviews of New Establishments; Fife; 1967.

¹⁰⁷Footnote. The establishment in electronics was Beckman Instruments at Glenrothes who were influenced by the Scottish Council (Development and Industry) in their location decision. The firm in engineering was Monotype Corporation Ltd., at Dunfermline for which a "personal contact" with the Fife area helped "tip the balance" for a location in the county. (Interviews; Beckman Instruments, Glenrothes, 1967 and Monotype Corporation Ltd., Dunfermline, 1967).

¹⁰⁸Interviews of New Establishments; Fife; 1967.

¹⁰⁹Footnote. e.g. see Glenrothes Development Corporation Annual Reports, No.6 for 1954-55; and No.12 for 1960-61, para.47.

Fife County Council began using the existing premises at the naval repair base at Donibristle before financial aid from government was given. See Fife County Council, (1960), Retrospect 1959, p. 31.

¹¹⁰Footnote. This was true of the entire 1958-1967 period in Fife but expansion in the early stages (1958-63) was limited in comparison with that from 1964. Parts of Fife were development districts from 1960 but the time was not ripe for rapid growth at that time; other factors such as general economic expansion, the completion of the Forth Road Bridge and the testing of the area as a location for industry, were missing.

¹¹¹Footnote. The use of industrial development certificate data in the assessment of Central Fife as a growth area assumes two elements, first that industrial development certificates were mainly relevant to new establishments in the county (the only evidence of large-scale construction in the older sectors of industry in Fife was that in Kirkcaldy for linoleum and leather cloth and that in Glenrothes for paper and board (see Chapter V)), and second that most development occurred within the industrial arc of the county and especially in the designated growth area. The writer accepts both as valid assumptions.

¹¹²Footnote. The local authorities and new establishments in Fife stressed this in interviews.

¹¹³Footnote. Note that difficulties existed in comparing statistics in time; e.g. as a result of changes in the designated development districts the whole of Scotland, less Edinburgh and Leith, became a development area in 1966. Note also that Fife was virtually wholly dependent on the government measures; no evidence of industrial growth existed outwith the designated assisted area.

CONCLUSIONS

This thesis is a geographer's appraisal of an attempt to reduce regional inequalities in economic development in the United Kingdom by inducing growth in one of the less favoured areas. More specifically its purpose was to investigate in detail the nature and the degree of the problems of development and growth in Central Fife between 1959 and 1967, and to identify and assess both the changes effected during this period and the forces conditioning these changes, and so test the hypothesis that, given certain inducements, Central Fife could justify its selection as a "growth area" as defined in the Central Scotland Programme for Development and Growth.

The nature of the topic demanded that the investigation be broad-based and comprehensive in scope and yet detailed in content and examination, a dilemma solved by a calculated decision to concentrate on key economic distributions set in the areal focus of Central Fife. Consequently this thesis stresses the industrial base of Central Fife, the emphasis given to other elements being proportionate to their impact on this key distribution. This decision reduced the scope of the study to manageable proportions without compromising the need for detailed examination.

However, it must be noted that for a meaningful evaluation of Central Fife as a growth area the investigation had to

recognize the need for a degree of flexibility both in terms of the areal focus and of the time base for the study. It was obvious from the outset that one had to avoid any over-precise delimitation of the study area. The nature of the topic rejected this. Events in Central Fife were intimately linked with developments at the national level and within Central Scotland; and the dynamism involved in polarization with its geographical connotation of concentration and decreasing intensity from a core similarly refuted the application of precise limits to the area of study. In this context the industrial arc of Fife from Dunfermline to Leven constituted a meaningful area for the analysis of several distributions, and in a like manner, most patterns analyzed in the investigation were placed in the county setting, thus recognizing the significance of the areal differentiation inherent in the polarization process.

The examination of Central Fife as a growth area also demanded a degree of flexibility in terms of the time base for the study. The arbitrary use of 1959 as the base year for analysis was justified by the availability and suitability of statistical data, particularly in employment and unemployment, and as representative of the phase when deteriorating trends in the economic base of Fife initiated the need for direct government participation in the development of the area. However, the significance of coalmining in the social and economic geography of the county and the problems associated with its rapidly changing fortunes demanded that this industry be studied from 1947; only thus could one assess its impact on the entire area. In a similar manner it was convenient to examine industrial location from 1945 in order to evaluate the importance of development district status to growth and development

in Central Fife.

Further, for a valid evaluation of the stated purpose of this thesis it must be emphasized that Fife was in a state of transition throughout the entire 1959-67 period, a transition which was still in progress in 1967 and which was especially dynamic in the industrial base of the area; some sectors were declining rapidly, some were changing slowly, while the expansion in others was at rates not entirely expected in 1959. However by 1967 several indications favourable to the Central Fife area in its evaluation as a growth area were apparent.

The Central Fife area faced several inter-related and critical problems in its development between 1959 and 1967. These problems were both economic and non-economic and were similar to those encountered in the Scottish Economy as a whole, differing only in magnitude and detail. The symptoms were obviously similar; unemployment was high and activity rates were low, both relative to the United Kingdom base; changes in population were unfavourable to the area mainly as a result of a high and accelerating rate of net emigration which was extremely age-selective; the employment capacity of the industrial base had contracted. The basic underlying cause was also similar; the industrial base was too specialized in declining and slow growth industries to be conducive to growth.

This general assessment of the problems in the development of the Central Fife area was more valid in the earlier part of the 1959-67 period. Changes from 1959, notably the introduction of new, expanding industries into the industrial structure, improved the situation sufficiently by strengthening the area's economic base. However, this improvement, while marked in certain parts of the area, did not give any grounds for complacency in the

need to secure long-term sustained growth and development; moreover, it did not alleviate the problem of net emigration, the rate of which doubled in the 1961-66 period and was instrumental in the decline both in total population and in the work-age group in the area.

High unemployment and low activity rates indicated the problem of underutilization of potentially available labour in the Central Fife area. Unemployment was especially serious in the 1959-63 period when it increased in both the male and female sectors as the industrial base contracted. This situation improved from 1963 as new industries introduced into the area expanded the employment base and as net emigration rose appreciably to critical proportions; both relieved the pressure of unemployment. Throughout the entire period unemployment was concentrated in the industrial arc of Fife and was especially high in the designated growth area of Cowdenbeath-Burntisland and Kirkcaldy-Glenrothes, with an extension into Leven; the changes between 1959 and 1967 were also greater in this area.

Against a background of labour shortages in parts of the United Kingdom, notably in the Southeast Quadrant, the high rate of unemployment in Scotland was viewed as a resource, an asset rather than a handicap to development. This was refuted in Central Fife. In practice, statistics on the registered unemployed were not fully reliable as an index of available labour; many of the unemployed were either unemployable or were not actively seeking long-term employment, and most industries had been forced to recruit labour from the ranks of the employed or from newcomers entering the labour market. As an indicator of available labour unemployment could be regarded only as an approximation, particularly

in any long-term evaluation of the potential for development.

As a potential resource for development the low activity rates in the area constituted a more meaningful index of available labour than unemployment. They indicated a source of untapped labour which, if activated, was a major potential asset when compared with labour shortages in other parts of the United Kingdom. Male activity rates in the area declined between 1961 and 1966 due to contraction in the industrial base, this despite a decline in working-age population during the period; obviously a need existed for the introduction of male-employing industries to alleviate this increasing underutilization of labour. In contrast, female activity rates rose closer to those of both Scotland and the United Kingdom as a result of the influx of new female-employing industries, suggesting that it was possible to activate this hidden asset of the area, and with the pull of available labour in industrial location rising in significance, this augured well for the future development of industry in Central Fife.

The investigation of Central Fife showed that this conclusion of underutilization of labour was also relevant in qualitative terms. The new industries were satisfied with labour in the area; the available labour possessed the aptitude and the attitude to absorb training and was rapidly becoming an efficient work force by 1967; further, a few new establishments, in engineering in particular, expressed surprise at the quality of applications for jobs which they considered were below the formal qualifications and the capabilities of the applicants. Obviously, the Central Fife area could absorb additional new employment, a considerable asset in the United Kingdom setting.

High and age-selective net emigration constituted a critical problem in the long-term development of the Central Fife area, and one which intensified over the period. Between 1951 and 1961, as a result of high net emigration, population in Fife experienced only slow growth despite a substantial natural increase, but more significant in the context of this thesis, this slow growth was mainly in the non-productive age groups due to the age-selective nature of emigration in the area. Spatially, these trends were most pronounced in the industrial arc of the county within which, however, variation was notable; Kirkcaldy-Glenrothes gained appreciably in total population and in work-age population due in part to a large positive net migration component; the attraction of the new town in these trends was obvious. In contrast the decline in population and in working-age population was significant in Lochgelly District of County which experienced substantial net emigration.

The effects of high and age-selective net emigration were not merely direct in the removal of vital, procreative elements of the population, they were also indirect and in a longer term analysis were responsible in part for the decline in the birth rate and the lowering of the natural increase in population in the area. These potential problems became realities in the 1961-66 period and were further aggravated as net emigration soared to critical proportions; both resulted in the absolute decline in population between 1961 and 1966, a decline which was experienced even in the large burghs of Dunfermline and Kirkcaldy, the two main urban concentrations in the area; further, more than half of the recorded decline in the county was in the working age groups. With the exception of the new town which expanded, these trends of decline were most

pronounced in the industrial arc of the county, particularly in Lochgelly District of County and to a lesser degree in Wemyss District of County. The gravity of this situation was heightened since decline occurred despite the introduction of new industrial employment into the area.

This thesis concludes that these trends in net migration represented the most crucial problem in the future development of Central Fife. Obviously a continuation of the 1961-66 trends (into the post-1966 period) would have disastrous repercussions on the supply of labour, this at a period when the new industries introduced were on the verge of accelerated expansion and as the area was becoming increasingly attractive for further industrial development. Moreover, these trends would also adversely affect the attitudes of the labour force, since an older and ageing work force would tend to reduce the geographical and the occupational mobility of labour and affect such critical indices as training and retraining in new skills to satisfy the demands of the newer growth-type establishments in the area. However, to place this issue in its proper perspective, the supply of labour in the Central Fife area would be adequate to satisfy the demand at least until 1971 but, unless the high and age-selective net emigration was controlled, labour could alter from a decided asset in the development of industry in the area to a major problem; up until 1967 it was a major strength, from 1971 it could gravitate into a critical weakness in the development of the Central Fife area.

The Central Fife area was faced also with the problem of the contraction of employment in the industrial base between 1959 and 1967. This problem was much graver in the earlier stages of the period but was being overcome progressively with the infusion

of employment from new manufacturing establishments locating in the area; by 1965 this trend of decline had been reversed. Spatial variation was evident in these trends. In the 1959-63 phase, the decline in employment in industry occurred in every area of Fife but was especially high in Cowdenbeath and in Leven as a result of the rapid contraction in coalmining, both these areas expanding marginally in the manufacturing sector; Kirkcaldy-Glenrothes also experienced marginal decline in industrial employment despite growth in secondary industry. From 1963 growth in employment both in total industry and in manufacturing was substantial in Kirkcaldy-Glenrothes and in Dunfermline-Inverkeithing; in these areas growth in coalmining and the introduction of new manufacturing industries were the causal elements in these trends. In contrast, employment in both Cowdenbeath and Leven continued to contract, the rate accelerating in the former with the complete demise of coalmining in the area, but decreasing in Leven as the trends in the coal industry stabilized from 1964; neither attracted major industries in the period to affect these trends.

With the exception of Dunfermline-Inverkeithing the changes in industrial employment over the 1959-67 period favoured the female sector; the principal contracting industries were male-employing, coalmining outstandingly so; most of the new industries were female-employing. Spatially, employment in both sectors expanded in Kirkcaldy-Glenrothes and in Dunfermline-Inverkeithing; Cowdenbeath-Burntisland experienced marginal growth in female employment but declined drastically in male employment as a result of the rapid contraction in coalmining; trends in Leven were similar to those in Cowdenbeath-Burntisland but of a lower magnitude in both the male and female sectors.

The fundamental cause of the economic problems in Fife was also similar to that in the Scottish Economy (p. 7.01). The industrial structures of the various sub-areas and of the industrial arc of Fife were over-dependent on declining and slow growth industries to be conducive to growth. The degree of weakness in each sub-area depended on the level of involvement of each in declining industries and on the magnitude of change in these industries. In this, the weakness was not in specialization as such, but specialization in declining sectors like coalmining and to a lesser degree in linoleum manufacturing in the Central Fife area, the critical elements being the scale of decline for which the minor expansion in the slow growth sectors failed to compensate. Spatially in Fife, Cowdenbeath-Burntisland and Leven proved to be the most vulnerable areas in this regional variation.

This conclusion of weakness in the various sub-areas of Fife was especially valid in the earlier part of the 1959-67 period. In 1959 none of the industrial structures of the sub-areas of Fife was conducive to growth. All were over-dependent on industries which were either to decline or show only slow growth. The heavy dependence of the entire industrial arc on coalmining was a critical factor in this evaluation. Further, the analyses of the various industries significant in the area showed that most of the slow growth industries were facing problems. Markets for shipbuilding, weaving, and wool carpet manufacturing were declining and competition intensifying: competition in the paper and board industry increased markedly over the period but was cushioned by rising market demand for these products. The structure of these industries in Fife was not conducive to benefit from scale economies and, with contracting markets and

growing competition, the marginal location of these industries was unfavourable to production in the county. However, by 1967 the introduction of new manufacturing establishments had diversified the industrial structures throughout Fife, but only in Kirkcaldy-Glenrothes was this of sufficient force to alter the structural weaknesses of these areas. These new industries, particularly those in engineering and more so in electronics, had altered the emphasis in this area from declining and slow growth industries to expanding sectors in the industrial base. By 1967 Kirkcaldy-Glenrothes had emerged as the geographical growth-pole of Fife.

It was obvious that the introduction of new industries capable of generating growth was essential both in the short-term to provide employment to compensate for the contraction in the industrial base and also in the longer-term to lay the foundation for self-sustained expansion. Furthermore, the Fife case study showed that successful industrial operation in the county demanded a concentration in high value, quality products for expanding markets; without these prerequisites the geographical marginality of the Fife producer became an effective force in the inevitable rising competition. Only the new industries introduced from 1958 could meet these requirements; this was particularly true of those in "other machinery" and electronics, which emphasized the production of high value products able to withstand the costs of transfer to the main markets in England.

The effects of the new industries introduced into Fife were both direct and less direct. Their success in providing employment and in strengthening of the industrial structure was evident in the former. However in a less direct but equally significant way, these new establishments produced a growth momentum

in the area. They introduced new formalized training methods which in time "forced" the older industries in the area to alter their viewpoints on the training of labour and adopt a newer approach in this context. They introduced the advantages derived from larger sized units backed by the benefits of major industry groups (some of international repute) and of large-scale standardized production. And in time, the success of the new industries which located in the earlier stages of the 1959-67 period helped break down the psychological aversion of others to a location in a peripheral area. By 1967 these new industries had produced a degree of buoyancy and hope for further development in the Fife area, an optimism not apparent in the earlier part of the period; these industries were aiding in the creation of an industrial "climate" conducive to expansion.

The apparent success in attracting new industrial establishments between 1958 and 1967 showed that the Central Fife area possessed significant advantages in this context. The availability of suitable labour, particularly "trainable" labour, proved the principal attraction for incoming industry; by 1967, this labour force had shown that it possessed both the attitude and the aptitude to absorb the training demanded by the new establishments, this suitability strengthening the attraction for additional new industry. The other principal asset of the area was the provision of a wide range of sites and premises, the latter in advance or purpose-built, for rent or for sale; this proved a valuable "tool" in drawing new industries to the Central Fife area. Other less effective elements in this attraction of industry were the availability of housing which facilitated the mobility of labour, the momentum generated, and the aid given, by the local authorities, and to a lesser degree,

the help and advice from the Scottish Council (Development and Industry), personal contacts with the area, the pleasant physical amenity of Fife, and the close proximity to centres of recreation, shopping and culture.

However, it must be emphasized that these advantages in attracting new industry, significant though they were, were not sufficient in themselves to explain the success of this policy. The location of new establishments in Central Fife was also dependent on forces outside the direct control of the area.

Business expansion and a general economic "climate" favouring growth at the national and international level were prerequisites to location in Fife; without this there would have been no demand for additional space and consequently no need to consider location in an assisted area leading eventually to a location in Fife.

The effectiveness of available labour, of the provision of premises and sites, and of the other factors pulling new industries into the Fife area would have been negligible had not Central Fife been considered accessible to "raw materials" and to market, notably in the Southeast Quadrant, and to facilitate personal mobility at the management level. In this respect, the improvements in transport and communications were crucial to the location of new industries in Fife; the improvements in road linkages within Central Scotland and south with England effectively brought the county into the national pattern of road transportation and, with the completion of the Forth Road Bridge in 1964, broke down the traditional isolation of the area.

Finally in this context, the policies of the central government must not be understressed. The designation of parts of Fife

as development districts, first in 1960 and again in 1963, was instrumental in inducing new industry into the county, a revolutionary trend compared with the 1945-57 period. The need for an industrial development certificate "forced" some firms towards an assisted area location and eventually to Fife. By exerting control over the designation of development districts, the government effectively conditioned the emerging pattern of location in the county. And indirectly, by modernizing the regional infrastructure and by providing funds to alleviate physical decay and dereliction, to construct housing, and to train and retrain labour, the role of the central government in the development of Central Fife was substantial. Without this commitment of government, Central Fife would have remained a declining, stagnating area, its potential for industrial development unrealized. The area would have remained a backwater in industrial Central Scotland.

Thus Central Fife possessed advantages in attracting new industries. Some such as available labour and physical amenity were integral elements of the area's geographical "milieu"; others such as the provision of premises and sites, the completion of improved linkages to raw materials and markets, the construction of housing and the policies of the central government, both negative and positive, were the result of human action and inducement. The necessary catalyst to activate the growth process was business expansion creating a demand for space. These forces, aided by the problems of expanding in the Southeast Quadrant, led to the eventual location of new industrial capacity in the Central Fife area.

This thesis concludes that, given the above inducements, the Central Fife area possessed sufficient advantages to attract new industry and to justify its selection as a growth area. Growth

in the 1959-67 period was substantial. The number of new establishments introduced into the area and the factory space occupied by them was considerable; and even with a large percentage of the estimated additional employment in the new industries still to be realized in 1967, the jobs provided were enough to alter the decline in the industrial sector and to strengthen the economic base of the area. In addition, the analysis of industrial development certificate data showed clearly that Fife was a growth area both in absolute terms and also relative to both Scotland and Great Britain.

Of greater significance in the context of Central Fife as a growth area, the new establishments in the scientific instruments-electronics sector possessed the potential to form an economic growth pole in the area. By 1967 signs of this polarization were apparent in Fife. The growth in employment in this industry between 1959 and 1967 was the highest of any industrial sector in Fife and increased its status in the industrial structure of the county; in time, this industry would dominate the economic base of the area. The scientific instruments-electronics sector was drawing labour from the older industries in the county and was attracting the better quality elements entering the labour force. Smaller concerns in this field had produced parts and given service to the larger firms in this area, indicating their potential as vital links in the complex inter-industry linkage associated with the development of an electronics complex. Similarly, the example of Elliott Automation in their integrated development within the company and in their commitment to research in micro-electronics augured well for Fife. And finally, the electronics industry was creating an electronics "climate" in the Fife area, a climate making the county

more attractive to incoming industry. All the above indicated the initial stages in the formation of an economic growth pole based on electronics.

However, at the stage of development reached by 1967, the economic growth pole in Central Fife remained more potential than real. The formation of the horizontal, vertical and diagonal linkages essential to maximize scale economies associated with integrated development had been slowed down by the branch factory structure which favoured group purchasing of supplies in England, by the improved transport system which facilitated the importation of these supplies into Fife, and by the scale of operation attained by the new industries by 1967. Nevertheless, this thesis holds that, given continuing economic expansion at the national level and the expected rapid growth of the scientific instruments-electronics sector in Fife, these industrial linkages will materialize in time. However, in this context, one must not envisage an economic growth pole capable of challenging the supremacy of the main centre of polarized growth in the Southeast Quadrant, but rather a lower order pole set in a hierarchy within the national economy. As a lower order pole, Central Fife will be a centre of growth in Fife, will experience polarization and will initiate spread effects throughout the county, particularly to areas contiguous to it. The beginnings of this process were discernable by 1967 and will strengthen in the post-1967 period.

The emergence of the Central Fife growth pole was more readily apparent in its geographical connotation than in its economic. Geographically, growth in the Central Fife area between 1959 and 1967 was centred in two nodes within the area. The first,

located in Kirkcaldy-Glenrothes, was well developed by 1967: the second, situated at the northern bridgehead of the Forth Road Bridge in the Donibristle-Hillend area, was only in the embryo stage of development, most of the new industries locating there only in late-1966 and early-1967. In the case of the latter, time was necessary to assess its impact on development in Central Fife but the evidence available suggested that growth at this location could be substantial. By comparison, every indicator used in this investigation of Central Fife as a growth area showed that, by 1967, Kirkcaldy-Glenrothes was the geographical growth pole of Fife. This area attracted most of the new establishments located in the county from 1958 and, more significant, most of those in the electronics growth sector; it was the growth centre of factory construction in Fife; it was the area which experienced the greatest increase in industrial employment during the 1959-67 period; and it possessed the highest potential of any area in the county for further growth and development. In addition, the polarization of industrial activity in Kirkcaldy-Glenrothes was creating "backwash" effects on the surrounding areas. Labour was being increasingly drawn into this growth zone, both as permanent residents attracted by the ready availability of housing in Glenrothes New Town and as daily commuters, and most came from the areas contiguous to the growth pole; furthermore, Kirkcaldy-Glenrothes was the only area in Fife to record a net immigration between 1951 and 1966, again mainly from the surrounding districts. These trends will continue as further industrial development occurs in the growth pole. Finally, in this context of polarization and its impact on the entire Fife area, the role of the New Town as a "vehicle" for growth was unmistakable. Glenrothes New Town utilized its ability to attract industry and labour to form the core of the Central Fife "pôle de

croissance", the geographical epicentre from which growth would spread, first to areas abutting it and then to other parts of Fife county.

Thus overall, this thesis concludes that although the problems facing development in Central Fife between 1959 and 1967 were significant, the changes effected during this period were of sufficient force to create a growth momentum in the area. By 1967, the essential prerequisite for development, that of the emergence of a growth pole, had been realized. This required inducement but the results achieved showed that the area obviously possessed the milieu for expansion. Applying Milhau to the Central Fife situation

"Pour qu'un pôle de croissance puisse se développer, il faut que son apparition ait lieu dans un milieu propice. La graine judicieusement placée par la main de l'homme....deviendra arbre ou forêt..." (p.2.04)

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